THE FARMERS' REGISTER.

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EDMUND RUFFIN, EDITOR AND PROPRIETOR.

From the Genesee Farmer.

THE CULTIVATION OF WHEAT.

The following paper on the cultivation of wheat, was read before the Agricultural Society of this State at its meeting in February last, by H. Hickock, Esq. of Rensselaer county:

There are two causes which, when our winters are open, operate injuriously on wheat crops.—One is, the high and dry winds, which prevail in March; these blow off the soil in many situations, and by leaving the roots of wheat exposed, occasion their destruction. Another cause, is the heaving of the soil, occasioned by the alterations of cold and warm weather. The water in the soil, in the act of freezing, expands and raises up the earth, and also the roots of the wheat plants which the earth embraces when a thaw succeeds, the earth being heaviest, falls down first and leaves the roots of the wheat a little elevated, and by repeated changes of the weather, the roots are so far thrown out as to perish.

Farmers, when convenient, usually sow their winter grain early in September, upon a supposition which guides their common practice, that grain thus early sown withstands best the action of unfavorable seasons. This supposition, is founded upon the very plausible theory, that as the oldest roots will be longer and more numerous and take a firmer hold of the soil than those which are younger, they will be less exposed to be thrown above it, and at the same time, from their strength, be more tenacious of life. But experience informs us, that wheat, sown as late as the first or even the second week in October very often survives with less injury than that which is sown in the early part of September. Indeed farmers very generally admit, as the result of their experience, that rye, whose laws of vegetation must be nearly the same as those of wheat, sown so late in the season as barley to come up, is most likely to withstand an unfavorable winter. Still the very plausible theory, which has been mentioned, very generally induces them to sow rye early as well as wheat, in direct opposition to conclusions, which have been drawn from actual observation.

An experiment was made last autumn for the purpose of collecting some further information on this subject. On the first day of September last, I excavated a spot of ground six feet square. On the one side, the excavation was about six inches deep, on the opposite side, its depth did not exceed one inch. Seed wheat was placed over the bottom, so that the kernels were about four inches distant from each other, the excavation was then filled up. The soil was a suitable mixture of gravel, sand and clay, for wheat; and of ordinary fertility. This was the latter part of the extreme drought which prevailed last summer, and the soil was dry, warm and finely pulverized before it was thrown on the wheat. The circumstances, except the extreme dryness of the soil, were highly favorable to the vegetation of seed at the greatest depth in the earth. On the fourth of the month there was a heavy shower which not only wet the soil, but beat it down close and hard. On the ninth of the month, the plants began to show themselves; but none come up from a greater depth than about three and one-half inches. Two or three days after the second leaf had displayed itself, some of the roots were taken up and examined. It now appeared that nearly an inch below the surface of the ground, a new joint was found which was the basis of the second leaf, and also of a new system of roots. There were now two tiers of roots; the seed or knot adjoining it, had generated the lower tier, and the new joint the upper one. These two tiers or systems of roots were connected together by a root resembling a cord or thread, and in one instance, I cut off this connecting thread and transplanted the upper part. This grew with little apparent check from its curtailment; but the under part died, although the soil above it was opened so as to afford it the advantages of air and solar heat. On the 20th day of September, I examined another plant, which had its regular formations as expected, and, what was not expected, a blade was discovered about an inch long, which had started from the lower system of roots and would doubtless have found its way to the surface, had it not been disturbed. It is to be remarked, that this plant sprung from seed placed under cover of nearly four inches of soil, which was about an inch deeper than any of the other plants examined, and that some of the tops of the wheat plants had been eaten off and trodden down by accidental intrusion; a fact unregarded at the time. On the 26th day of September I examined another root, expecting to see the blade from below more perfectly developed, none however was discovered; but a third tier of roots was found at the surface of the ground, which proceeded from the second as that had from the first system of roots. On the 16th day of October I placed some seed wheat about two inches in the ground; their delay in coming up induced me to suppose that they had perished from cold and wetness; but at the expiration of three weeks they made their appearance, and although the ground remained open several weeks longer, no second leaf appeared, of course no joint or second system of roots had been formed. The very different formations in the roots of wheat, which this experiment has disclosed, proceeded from causes appropriate and capable of being ascertained, but to distinguish them with certainty, other trials must be made and conducted with greater accuracy than the one of which an account has been given.

From these experiments, though inaccurate, some conclusions may perhaps be drawn of practical use. All plants which live over winter, possess an apparatus, by which they supply themselves, in autumn, with food for their sustenance in spring. This food consists mostly of saccharine matter, which is enclosed in a proper receptacle. When this receptacle is formed near the surface of the earth, the fermentation of its contents is excited by frequent changes of weather, the saccharine matter is decomposed, and the plant pe-

rishes from the want of food, and perhaps also from a rupture of its vessels.

All wheat, shallow-sowed, must have its reservoirs of food but slightly covered with soil, and of course they are fully exposed. When wheat is sown early at any depth, a second, and sometimes a third system of roots is formed within an inch of the surface. In these, many stems originate, each of which has its receptacle of nourishment at its base, and it is quite certain that in most instances, the food, which was contained in the seed and the adjoining knot is entirely exhausted by the supplies of nourishment it affords the upper portions of the plant. The life of early sowed wheat must then, like that which is shallow sowed, depend upon the preservation of the reservoirs of saccharine matter which are placed at or near the surface of the ground, and of course exposed to the unfavorable action of variable weather during winter.

Wheat which is late sowed, generates no second blade or new system of roots, and of course, the nourishment for spring's use is retained in the receptacle which adjoins the seed. If then we sow sufficiently late in autumn, and place the seed deep in the soil, we shall provide every security against the hazards of bad weather, which the nature of the case admits of.

In the ordinary course of husbandry, some of the wheat is necessarily deposited at considerable depth in the soil, and when this takes place sufficiently late in the season, the receptacle of food will be protected by its covering of earth, and a partial crop will often be realized, although there may be, when the spring opens, no signs of life on the surface of the field. In such cases as the destruction of the blade, which issues from the seed-roots in autumn can be of little importance, one would suppose that the surviving plants will grow the more vigorously, from their being less in number, and by tillering produce many stems with large well filled ears; such, however is not the fact; usually the stems are single and the heads are not large. To account for this, it must be recollected, that after the ground has thawed in the spring, the earth settles and often becomes so extremely hard that doubtless many plants die, in their struggle to overcome the opposing resistance, and the surprise is, that any one should possess vigor enough to protrude even a single stem through the hard earth that covers it.

From this view of the subject, the practice may be recommended, of effectually harrowing the field in the spring after the ground has settled, in order to supply the plant with fresh air, and give a free passage to its upward growth. After the harrow has been used, the roller ought to be employed to reset such roots as have been displaced and diminish the evaporation of moisture.

In England, a wheat plant has been taken up, separated into eighteen parts and replanted, and by successive divisions and replantations, a crop of three and one-third pecks of wheat was obtained in less than eighteen months from the time the seed was sown. If the roots of wheat can be so minutely divided and successfully replanted, there is little danger that the freest use of the harrow can be injurious, provided the roller be also used. The fact appears to be, that nothing is necessary to thevernal growth of the plant, but the preservation of the apparatus which contains the saccharine matter, which is its proper vernal food; so that if the roots and top be cut off, and the bulb be planted in a genial soil, the plant will grow.

Notwithstanding the arguments which have been urged in favor of sowing wheat late, it must be conceded that when early sown and our fields are cultivated in the usual manner, it produces the largest crop, if it survive the cold season. Whether such improvements may not be made as to combine the benefits of a sure and large crop, is a question still open to investigation; the probability is, that both advantages may be secured, by a more correct knowledge of the proper time to sow, and of the best methods of culture.

In the first volume of the transactions of the society for the promotion of agriculture, arts and manufactures, instituted in the state of New York, it is stated that in Huntington, Suffolk county, fifty-two bushels of wheat had been raised by manure on an acre of land, and Mr. Downs is said to have raised, on a poor, gravelly, dry soil, by the use of fish as a manure, at the rate of 128 bushels of rye per acre. In this case, the rye would doubtless have lodged and been of little value, were it not that it was twice eaten off by his neighbors' sheep which broke into the lot; once when the rye was 9 inches high, and again when it was about 6 inches high.

The production of so large a crop of wheat and of rye must have proceeded from causes which are steady and uniform in their operations, and if all the circumstances which had occurred to produce them had been distinguished and noted down, similar crops might have been again raised. Some things which occurred during the cultivation of this rye crop may be ascribed to accident or chance, so far as Mr. Down's sagacity was concerned, but the causes which proximately occasioned the crop, did not work by accident or by chance, but agreeably to the laws or rules from which they never deviate. This uniformity of operation lays the foundation for making future discoveries, and brings within the grasp of our faculties the knowledge of increasing our crops by methods the least laborious and expensive.

The period may arrive when the farmer shall pursue his methods of culture with an anticipation of the consequences which will result, analagous to that of the mechanician in the construction of a machine, and when, by direct means, he shall produce greater crops than ever were obtained by mere empirical trials.

Time was when the greatest philosophers taught the doctrine, that all things pertaining to the surface of the earth were too irregular and too much under the government of chance, to admit of scientific inquiry; this error has, within the two last centuries, been dispelled. But a similar error, in regard to rural affairs, is embraced by almost all our practical farmers, and the task of correcting and exposing it is devolved, it would seem, upon the unaided efforts of a few individuals. Here then is the difficulty.

From the Rochester (N. Y.) Daily Democrat.

UNPARALLELED SPEED UPON THE CANAL.

On Saturday, some forty or fifty of our citizens took a ride upon one of the new line packet boats,

designed to run between this city and Buffalo. The boat is made considerably narrower than the ordinary packets; is exceedingly light, and finished in the most elegant manner. It is a sample of the workmanship of our enterprising and faithful fellow citizen, Seth C. Jones, who has for some time, we understand, been of opinion, that a boat might be so constructed as to be drawn by horse-power, at the rate of ten or twelve miles to the hour. The test on Saturday was a delightful realization of the fact. Although the horses were unaccustomed to the business, and for four or five miles of the distance, were exceedingly fractious and hard to manage; the ride was completed in two hours and thirty-four minutes, a distance of twenty-four miles, including changes of horses and a short stop at Spencer's Basin. It is found by experiments, that when the boat is propelled at the rate of seven and a half or eight miles to the hour, it rides upon the swell, creates less commotion in the canal, than the common packets at four miles to the hour, and requires, we believe, about the same power to draw it. An enterprising company has been formed to run a daily boat of this size to Buffalo, leaving Rochester after breakfast and going through by daylight, a distance of ninety-five miles! This will be "going ahead" on the "rail road principle," and those who are going from this to Buffalo, or from Buffalo here, we think it will not be difficult to say *how* they will go.

Extracts from an Address to the Essex County Agricultural Society.

ON IRRIGATION.

By EBENEZER MOSELEY, President of the Society, *September* 25, 1834.

The committee of the Essex Agricultural Society, on Irrigation, consisting of Daniel P. King, Hobart Clark and Moses Newell, report:—

That their attention was invited by Mr. Ebenezer Jenkins of Andover, to four acres of mowing land on which he has been making an experiment in irrigation. The field is a sandy gravel, the kind of soil most capable of improvement by watering, and so situated as to be flowed at pleasure. Mr. Jenkins bought of a neighbor the use of the water and the privilege of digging through his pasture for ten years, for twenty dollars; he then built a dam across a constant stream and made a channel about fifty rods in length; by means of this and other smaller ditches, he conducts the water on his field in such quantities and at such times as he thinks proper. Mr. Jenkins states that it is his practice to bring the water on the last of April, and to stop flowing about the 25th of June. In the spring of two years out of the four that his land has been in a course of experiments, he has applied a very light top dressing. The experiment has been successful and creditable to the enterprise of Mr. J: the average crop of grass for a number of seasons, according to the statement of several disinterested and judicious farmers, had not exceeded 10 cwt. to the acre: for three years past it was nearly equal to 30 cwt. and the present season, was judged to be two tons to the acre; the quality of the hay is good, and it would command a fair price in the market.

Irrigation, though long and extensively practised in other countries, has been but seldom attempted here. That it might be profitably employed by many farmers is probable: that it has been so employed by Mr. J. is certain. We will offer him a few suggestions; if the trial should not prove them to be improvements, he will have the additional merit of having extended his experiment, and having proved many things, he can hold fast to that which is good.

We think he should commence flowing earlier in the spring, and draw off the water sooner than the 25th of June; his grass would be ripe earlier, and by bringing on the water directly after the hay is housed, he would probably secure a heavy second crop. If his top dressing were applied in the fall instead of the spring, it would protect the grass in the winter, and might be productive of greater advantage. Mr. J. in his statement remarks that "observation and judgement are required to know how and when to apply the water," we agree with him, and offer our hints with some distrust of our ability to advise him. The writers on the subject whom we have consulted, recommend a course different from his in some respects. They say that the night, and cool or cloudy weather are to be preferred for bringing on the water. They also give a general rule, that no water should be applied, (unless in time of drought,) when the grass is tall and nearly full grown, as it might cause it to lodge, might make it gritty, or give it an unpleasant taste.

In our opinion Mr. Jenkin's experiments and statement are satisfactory, and entitle him to a premium of $20 00

Respectfully submitted by,

DANIEL P. KING.

New Rowley, Sept. 25th, 1834.

Ebenezer Jenkin's statement, to the Committee of the Essex Agricultural Society, on Irrigation.

GENTLEMEN—I present you with the following as a statement of my method of irrigating my mowing land. In the spring of 1831, I purchased of a neighbor for twenty dollars, the privilege of conducting the water from a constant brook, through his pasture, for the term of ten years: I then made a canal or ditch about fifty rods in length, after constructing a wooden dam across the brook; and on the 31st of April conducted the water on to one acre of sandy field land. This land has a gentle slope towards the south, had been four years in grass and the average crop was about one half ton. I stopped the flowing of the water, June 25th. The hay when made was estimated by judicious neighbors to be two tons.

In 1832, I continued and extended the experiment. On the acre above named, I obtained about two-thirds as much hay as last year. On the two acres, covered with water, for the first season, I obtained by estimation three tons of clover hay. Method of flowing the same as in 1831.

In 1833, I applied a light top dressing of compost manure, which I obtained by ploughing a yard where I had watered my cattle one winter. It amounted to about four cords, was mixed fine, thrown into a heap where it laid through one winter, and was spread in the spring. I obtained this year by estimation from 23 to 27 cwt. per acre.

In 1834, in the spring, I spread on about four acres eight cords of compost manure which I bought for $2 50 per cord. The water was used

as in former years. The crop of hay has been estimated by several farmers at from 30 to 40 cwt. per acre.

It is not in my power to detail accurately the manner of using the water, as no two seasons are alike. Observation and judgement are required to know how and when to apply the water. I let the water on whenever we have a severe shower, for the benefit of the wash, which as you will perceive on viewing the land and brook, is great. I consider the water of greater benefit when the sun shines, than in cloudy weather at the same temperature, as the water draws the sun, and the warmer the water is, the faster the grass will grow. In the season of 1832 the frequent rains deceived me: on such sandy land we have seldom rain enough to supply the wants of the grass: in that year I think I did not bring on water enough. The actual expense of my experiment and the top dressing I have named, I estimate at $58.

Respectfully submitted by,

EBENEZER JENKIN'S.

Andover, Sept. 11th, 1834.

From Featherstonhaugh's Geological Report.

IMPORTANCE OF GEOLOGICAL PRINCIPLES TO MINING OPERATIONS.

It may also be instructive to observe here that the eastern coal field of the southern states, with which we are acquainted in Virginia and Alabama—in the former of which states it has already become a source of great wealth, giving constant employment to locomotive power and shiping—may reasonably be inferred, from some known partial indications, to be continuous between those points. I can confidently assert, from personal inspection, that there is a very promising line of continuity between those extreme points; and the bituminous coal, of a very fine quality, may reasonably be expected to be found in situations where it does not crop out on the surface. As an evidence of the confidence which may be placed in geological indications, I consider it important to mention, in a brief manner, a coal mining operation now conducting in England—and which had just been commenced during a visit I paid that country in 1826—upon the sole ground of an entire confidence placed in geological principles, and without any indication whatever of coal cropping out on the surface. A shaft was sunk at Monkwearmouth, near Sunderland, in the county of Durham through a group of calcareous rocks which were supposed, from the immutability which rocks are believed to preserve as to the order of superposition to each other, to overlie certain coal veins existing in the contiguous parts of the country. The shaft was sunk 344 feet beneath the surface before any coal was found; they then reached a small seam of one and a half inches in thickness. This occurred in 1831, after encountering incredible difficulties in stopping an influx of water that had frequently almost overpowered them. They proceeded to a depth of one thousand feet, when it became necessary to invest more capital in pumps of greater capacity, and this without meeting more coal. But the proprietors had confidence in their operations, and, amidst the loudly expressed doubts of many of their friends, persevered until, at a depth of 1,478 feet below the level of high water mark, they reached a very valuable seam of fine coal, and are actually now carrying their shaft to a depth of one thousand eight hundred feet, in order to reach a vein of coal long worked in other situations, and which they are confident will be found within that depth. This vein, when reached, will repay all the outlay of capital, and become a source of great wealth.

From a Dublin Paper.

IMPORTANT SCIENTIFIC DISCOVERY.—REFUSE OF COAL GAS.

The scientific researches of Messrs. Enderby have changed this useless, and indeed expensively encumbering material to the holders, (as they were prohibited from even throwing it away, under considerable penalties on account of its pernicious qualities in the river or its offensive ones in air) into a valuable commodity. The material by a simple process of purifying will be of most essential service where intense light is required. The light it gives is only to be surpassed in brilliancy where a stream of hydrogen and oxygen gas is in combustion upon lime, or phosphorous is burnt in oxygen. Such being the fact it will be found most valuable in the lighthouse, and save many a mariner from a watery grave. It is also equally applicable to street or factory lights. Its leading recommendations are these—first, its cost is about one-tenth of gas viz; a light equal to a large cockspur burner can be procured for eight hours, at an expense of three halfpence. Second no wick is required, the lamp requires nothing but replenishing the receiver. Third, it has no offensive smell while in a state of combustion. The lamp is made of tin or any other suitable metal and the material flows into a cup; a stream of air is admitted through the centre of the flame, and a double cone open at the apex is placed upon it and the light is regulated by a cock. In the absence of this arrangement, it will hardly keep in a state of ignition.

From the American Farmer.

SHEEP HUSBANDRY.

Ravensworth, March 25, 1834.

Dear Sir—I have thought it not impossible, that in the present depressed state of agriculture, the following estimate of the profits of a farm devoted exclusively to sheep, might be of service to some of your numerous readers. I am not, I think mistaken, in supposing, that at the price at which corn and wheat now sell, they cannot be advantageously cultivated on lands yielding less than fifteen bushels of the former, and eight bushels of the latter per acre. And yet how many thousand of acres, both in Virginia and Maryland, are either thus employed at an expense very far exceeding their production, or are abandoned as wholly unfit for any agricultural purpose whatever!

My own experience has satisfied me that lands of this description, even of the poorest quality, may (if broken and tolerably well watered,) be advantageously converted into sheep-walks; and by a judicious course of husbandry, be made not only to produce a fair interest on the capital invested, but to furnish within themselves ample re-

sources for their own renovation. To point out the means of accomplishing this desirable change is the object of the following estimate.

Very respectfully, yours, &c.

WM. H. FITZHUGH.

J. S. SKINNER, ESQ.

Estimate for a Farm devoted exclusively to Sheep.

A farm, containing 1000 acres of land, under a good fence, having a dwelling house and all necessary out houses, together with two milch cows, two work horses, (or four oxen,) two breeding sows, one thousand sheep, a light wagon, cart, gear, ploughs, harrows, hoes, spades, axes, and all other necessary utensils, may very readily be purchased in convenient locations, either in Maryland or Virginia for $12,000; which if it yields only six per cent. on the purchase money, or $720 nett per annum, would be a more profitable and safe investment than can be made in any stock in the U. States. But it is susceptible of demonstration, that with tolerably judicious management, it may be made to yield nearly double that amount, and be itself annually improved in value.

The following is the system of management, which, after long experience, I have no hesitation in recommending.

The farm and every thing appertaining to it, except the sheep, being secured at the beginning of the year, the first operation should be to throw it into three divisions, viz: two fields for grazing, of 350 acres each, and one of 300 acres, comprising the woodland, garden, house lots, and about 100 acres of open land for cultivation and improvement. This arrangment and the necessary fences may be completed during the freezing and wet weather of January, February and March; while the dry and open weather of those months should be devoted to ploughing and harrowing about 40 acres of arable land; one-half of which may be sown in oats, for a crop, by the end of March, and the other half planted in corn between the 1st and 15th of April.

These operations being completed, there will be time enough before the corn requires cultivation, to plough, harrow, and sow down in oats, ten acres more of the arable land for the purpose of improvement, by folding the sheep and cattle in them during the summer and fall; after which, the chief occupation of the hands till harvest, will be the cultivation of the corn and attention to the sheep, which ought to be purchased and brought on the farm as early in May as possible, and together with the cattle be folded every night on the oat grounds prepared for them, in a pen containing about half an acre of land.

As this business of folding is to be the great source of improvement and profit on a sheep farm, it ought to be managed with the greatest care. No danger need be apprehended to the sheep either from dogs or disease, provided cattle be always folded in the same pen with them, and care be taken never to put them up till after sunset, and always to turn them out before sunrise. With a view to the rapid and permanent improvement of the soil, I consider the following the best possible mode of conducting this part of the system.

When the first fold is sufficiently manured, (which will be eight or ten days, the pen should be removed, the ground ploughed, harrowed, and sowed down in oats, and ruta baga turnips; and the same process be pursued with each succeeding fold, till the first of August; care being taken in the meantime to turn in all that portion of the land prepared for folding, on which the oats have ripened before the folds have reached them.

On the 1st of August, the sheep should be divided into two flocks—one containing the breeding ewes and stock weathers; the other consisting of the lambs and such old ewes and weathers as it may be desirable to prepare for market. At this time too, the folds should be brought back to the ground first penned and sowed in oats and turnips, which will now be covered with a fine growth, and be ready for a second penning. In performing this operation two pens must be employed for the two divisions of sheep; the lambs and the muttons being permitted to occupy each pen, in advance, about four days, and the main flock following for about the same time.

Lands thus prepared will be brought to the highest possible state of fertility. Such as are penned before the first of September, may be sowed down in turnips, for the use of the sheep during the winter and spring; and the subsequent penning of September, October, November and December may be put in rye, wheat, kale, Hanover turnips, or any thing that vegetates quickly, for spring grazing. A piece of the poorest land on my farm, treated in this way, (except that wheat as a crop, was substituted for turnips, oats, &c.) fattened me fifty of the best muttons I ever saw; yielded 22½ bushels of wheat to the acre, and is at the end of three years, still covered with a fine coat of orchard grass.

We have now arrived at the period of the year in which the sheep are to be put into winter quarters. For this purpose, the fatted sheep ought to be sold off as soon as possible, the breeding ewes put to themselves in one of the grazing fields, and the rest of the flock in the other. Each parcel should be brought up at night into a small lot near the house, provided with uniform shelters, and there fed both night and morning, on hay, corn tops, blades, or turnips. As the ewes begin to yean, which ought to be in March, they should be separated, or permitted to run on the ground prepared for them during the preceding fall; and their condition will be very much improved at this time by feeding them night and morning with oats in the straw, cut up to a proper degree of fineness.

The operations of the next and every subsequent year, will differ from the first only in this, that instead of breaking up new ground for an oat crop, oats may always be put in the twenty acres of corn land and the ten acres of manured land of the preceeding year; and the last should always be sowed down at the same time in orchard grass and clover. Ten acres of highly improved grass land would thus be added every year to the resources of the farm, until at length its quantity would probably justify the introduction of a few choice brood mares, as another source of profit, on the farm.

When the hundred acres first reserved for cultivation, shall, by this process, be converted into grass land, a farther encroachment, to the extent of fifty acres, may be made on each of the grazing fields, the same course of husbandry be pursued on them as on the first division.

The only permanent laborers requisite for such a farm as this, would be a man, his wife, and a boy old enough to plough. In shearing time and harvest, it might be necessary, perhaps, to employ additional labor.

The above system is adapted to the poorest description of high and broken lands in our country, and may be applied to a farm of any size, from two hundred to some thousand acres. I have now five farms, stocked with from two to five hundred sheep each, undergoing this process; and after experience of many years, and even at the present low price of wool, I have no disposition to change my system.

The following I consider a fair estimate of the product, expenditure and profits, of a farm of 1000 acres, thus cultivated.

Product. To be used on the Farm.

20 acres of corn manured in the hill, at 3 barrels per acre, 60 bbls.
20 acres of unimproved land in oats, at 5 bushels per acre, 100 bush.
10 acres of manured land in oats, at 20 bushels per acre, 200 bush.
5 acres of turnips, at 200 bushels per acre, 1000 bush.
Hay, veal, hogs, &c. &c.

For Sale.

The wool of 1000 sheep, estimated at 4 lbs. (in the dirt,) per head, 4000 lbs.
An increase of 400 head of sheep, after making allowance for casualties, the use of the farm, &c. 400 head.

Supposing every thing made on the farm, except the wool and the increase of the sheep, to be consumed, we shall have for sale—

4000 lbs. of wool in the dirt, at 25 cents per lb.—equal to, $1000
400 lambs and muttons, at $1 50 per head, 600
Gross sales, $1600

From which deduct—

For permanent and occasional labor, $200
For contingencies, 200
400
Nett profit, $1200

Being ten per cent. on the original investment. I will only add that this amount might, of course, be very much increased, by improving the quality of the wool.

W. H. F.

From the Tennessee Farmer.

USE OF TOADS OR FROGS TO DESTROY BUGS IN GARDENS.

On every square rod planted with cucumbers, put a piece of a board flat on the ground, to preserve your plants from a striped bug, which some seasons is very destructive. This simple experiment may seem to be novel and ineffectual; but the secret of the matter is, the board forms a shelter for a toad, which hops from under the cover at night and destroys the bugs, and during the day time may be found by turning over the board. Should any one have doubts on the subject, he can easily try the experiment.

Extract from A Guide to a course of Lectures on Geology, delivered in the University of Pennsylvania.

DESCRIPTION OF THE PRINCIPAL ROCKS, AND STATEMENTS OF THEIR COMPONENT PARTS.

By H. D. Rogers, Professor of Geology and Mineralogy.

The whole number of simple minerals is between 300 and 400; of these, however, a very small list will be found to comprise the ordinary materials of most rocks.

The following table embraces those minerals which occur, mingled together, most frequently in nature. They are given nearly in the order of their relative abundance, with the average quantity of the several metallic oxides, earths, &c. which enter into the composition of each.

TABLE OF MINERALS, &c.

	Silica	Alumina	Potash	Soda	Magnesia	Lime	Ox.of Iron	Ox.of mang	Fluoricacid	Water	
Quartz	99.00								1.00		
Feldspar	64.04	18.94	13.66				0.74				
Mica	46.14	26.16	10.12				8.17	0.61	1.09	2.00	
Hornblende	45.69	12.18			18.79	13.83	7.32	0.22	1.50		
Augite	54.86	0.21			16.49	23.67	4.44	0.42			
Hypersthene	54.25	2.25			14.00	1.50	24.50			1.	
Serpentine	42.50	1.00			38.63	0.25	1.50	1.62		15.20	Chrome 1.25.
Diallage	47.20	3.70			24.40	13.10	7.40			3.20	
Schorl	36.03	35.82	0.71	1.96	4.44	0.28	13.71	1.62			Boracic acid 3.49.
Chlorite	27.43	17.90	1.56		14.56	0.50	30.63			6.92	
Talc	56.90	0.80			26.40	4.00	8.10			3.00	
Garnet	39.69	20.19				1.01	35.99	3.09			
Steatite	61.68	0.83			27.80	0.25	2.50			6.00	
Actynolite	50.00	0.75	0.50		19.75	9.75	11.00	0.50		5.00	
Green sand	50.00	7.00	10.00				21.00			11.00	

Carbonate of lime.—Lime 56.00, carbonic acid 44.00.

Carbonate of magnesia.—Magnesia 48.00, carbonic acid 49, water 3.00.

Sulphate of lime.—Lime 32.00, sulphuric acid 46.00, water 22.00.

Muriate of soda.—Soda 53.44, muriatic acid 46.55.

Oxide of iron.—Iron, oxygen.

Sulphuret of iron.—Iron 47.85, Sulphur 52.15.

Descriptions of the above Minerals.

Feldspar.—Its colors are various, but it possesses a peculiar lustre, and a foliated structure, which distinguish it easily from other minerals. Occurs massive, disseminated and crystallized. Its common crystallized form, a broad six-sided prism, with dihædral summits; an oblique four-sided prism; a six-sided prism, terminated by five unequal faces. Structure foliated; cleavage in two directions; lustre shining, often pearly; translucent or nearly opaque; cross fracture conchoidal; fragments rhomboidal. Scratches glass. Before the blowpipe, on charcoal, in a bright heat, it turns glassy, whitish, semi-transparent, and melts on the edges into a translucent, frothy enamel, with great difficulty. With borax, fuses slowly into a clear glass. With solution of cobalt, gains a blue color on the fused edges. Specific gravity 2.54. Abundant in the gneiss rock near Philadelphia.

Mica.—Characterized by the readiness with which it splits into extremely thin, smooth, shining plates or scales, which are transparent, flexible, and highly elastic. Occurs abundantly disseminated in grains or spangles, also in masses, and sometimes in regular six-sided tables. Colors various; lustre shining, often pseudo-metallic. It is scratched by the knife, but the edges scratch glass; smooth but not unctuous. Different micas differ in their behavior before the blowpipe; generally they are fusible into a gray enamel, but with difficulty. Specific gravity 2.7. Abundant in the mica slate a few miles up the Schuylkill, also in the rock at Fairmount; beautiful masses occur near Wilmington.

Hornblende.—Color dark bottle green, passing into black; occurs massive, also sometimes in six-sided prismatic crystals; fracture crystalline, showing fibres confusedly aggregated; opaque when black; translucent on the edges when green; lustre shining, pearly; powder or streak, green; exhales a bitter smell when moistened. Before the blowpipe, melts with great ease into a blackish colored glass. Specific gravity 3.15 to 3.38. Found on the Schuylkill, not far from Fairmount.

Augite.—Prevailing color dark green, sometimes blackish or yellowish green; also brownish, gray, or even white. Massive, crystallized, and in grains. When regular, in six or eight-sided prisms, terminated at each extremity by two faces. Structure foliated. Lustre glimmering or splendent. Before the blowpipe, melts into a black enamel, with extreme difficulty, and only in minute proportions; this property distinguishes it from hornblende, which it much resembles in appearance. Specific gravity 3.15 to 3.57. Found a few miles from Baltimore.

Hypersthene.—Dark greenish brown or black, with pseudo-metallic reflections of a copper red; massive; structure lamellar; opaque. Powder dark greenish gray; yields slightly to the knife; scratches glass. Before the blowpipe, on charcoal, fuses easily into a grayish green opaque glass. Melts easily with borax into a dark green glass. Specific gravity 3.4. Found on Brandywine creek, Delaware.

Serpentine.—Common serpentine is usually classed as a simple mineral, though the composition of the rock which receives this name is by no means definite and uniform. Colors green, yellowish green, blackish green, brown, bluish gray, or reddish, variegated with stripes, veins and blotches; generally opaque and dull. Massive; fracture uneven, or splintery; hardness extremely variable; often gives out the odor of clay when breathed on. Heated in a flask, it gives off water and turns black. On charcoal, turns white, and in a good heat, melts on the thin edges into an enamel. With borax, slowly melts into a clear green colored glass. Gives a red color when fused with solution of cobalt. Specific gravity, 2.5. Bare Hills, near Baltimore; Hoboken, New Jersey; West Chester and Montgomery county at Easton, Penn.

Diallage.—Of this mineral there are two species; the *metalloidal* is however, the commonest as an ingredient in rocks. It is sometimes called Schiller spar; its colors are bottle emerald or olive green, yellowish or pinchback brown. Lustre approaching to semi-metallic. In granular concretions. Lamellar. Opaque in mass, but transparent in leaves. When turned towards the light, the colors suddenly appear and disappear, as in Labrador felspar. In the flask or matrass, yields water, crackles, and acquires a clearer color. Before the blowpipe, on charcoal, melts slowly on the edges into a gray scoria. With borax, melts with much difficulty into a transparent glass, somewhat tinged. Some variety infusible before the blowpipe. Specific gravity 3.1. Commonly found in serpentine. Found near Haverstraw Bay, New York.

Schorl.—Color velvet or brownish black. Massive and crystallized in three, six or nine-sided prisms, variously bevelled and striated. Lustre glistening, vitreous; brittle; fracture conchoidal; becomes elastic when heated. Before the blowpipe, fuses by itself into a frothy mass, and turns white; afterwards melts with difficulty into a translucent grayish yellow bead. With borax, melts readily with effervescence, into a nearly colorless and transparent glass. Specific gravity 3. Schorl resembles hornblende, but has a vitreous lustre, a conchoidal or uneven fracture and is electric while hornblende has a shining, rather pearly lustre, is softer, has a splintery fracture, a lamillated structure, and is non electric. Found near Baltimore, Rhinebeck, N. Y. In the gneiss rock near Philadelphia, at Judge Peters' quarry above the upper bridge—fine specimens 8 miles on the West Chester road.

Chlorite.—Green is the prevailing color, varying from dark green to light grayish green, and generally dull; massive, crystallized, in minute hexagonal scales and earthy. Opaque, lustre, shining, pearly, soft, unctious; of a darker green than talc or epidote. Before the blowpipe on charcoal it melts into a black globule, with a dull surface; with boron forms a dark green glass, does not fuse or froth with soda. Specific gravity, 2.6 to 2.9.

Chlorite Slate has nearly the same color, with a slaty or foliated structure, composed of minute scales, less unctuous than talc slate, and more unctuous than mica slate. Harper's Ferry; Charleston, near Boston; near the Falls of the Schuylkill, in hornblende rock, with quartz at Willow Grove, and laminated near the soap-stone quarry, east side of the Schuylkill.

Talc.—Colors, various shades of green or greenish white, and silvery white, massive in thin plates or scales, easily separated; also indurated, and in hexagonal plates; flexible, but not elastic; lustre shining, pearly; soft, easily cut; very unctuous, gives a pearly white streak when rubbed on paper. Before the blowpipe, talc generally turns white, but does not fuse, the laminæ separate; with borax it melts with effervescence into a greenish transparent glass. Mica is flexible and elastic; talc is flexible, but not elastic. Specific gravity, 2.8. On the Schuylkill about ten miles from Philadelphia, in the soap-stone quarries, with rhombic spar, also near Baltimore.

Steatite, sometimes confounded with soap-stone, but improperly. Colors, various dull shades of green pale gray, yellow and red; gray is the most common, translucent on the edges, massive forming large beds; fracture ragged or uneven, with marks of confused crystallization, translucent on the edges; unctuous, can be cut with a knife, very soft when first taken from the quarry, yields to the nail. Before the blowpipe, hardens and turns black, but it is not fusible. Specific gravity, 2.7 to 2.5.

Soap-stone much resembles steatite; is much softer, being some times kneaded like dough when first quarried; it also fuses into a white and somewhat translucent enamel. On the Schuylkill, ten miles above Philiadelphia, connected with talc—extensively quarried under the name of soap-stone; also abundant in Connecticut, at Somers.

Garnet occurs in granular masses, and in roundish crystals, with 12, 24 or 36 sides; color reddish or blackish brown, opaque or semi-transparent; lustre glistening; brittle; fracture uneven; before the blowpipe, fuses with some difficulty into a blackish or greenish globule; with borax forms a glass colored green by the iron present; froths strongly when fused. Specific gravity, 3.69 to 3.76. At Haddam, Con. on the east side of Wissahickon creek, also 1½ miles above the falls of Schuylkill, in mica slate.

Actynolite.—Colors, green, sometimes deep and beautiful; also dark green and brownish. Occurs in wedge-shaped concretions and four-sided flattened prisms, often deeply striated, brittle, fracture fibrous; singularly harsh to the touch; lustre highly shining, silky; translucent; scratches glass. On the first application of heat it turns deep brown, afterwards melts into a greenish gray glass. Its color will distinguish it from hornblende, which it much resembles in form. Epidote is of a lighter or more yellowish green. Near Baltimore, in all its varieties; at Concord in Pennsylvania, in large masses; on the Wissahickon, ten miles from Philadelphia, in green needle-shaped crystals, in steatite.

Carbonate of Lime.—The forms and external appearance of this mineral, are extremely various. Its prevailing color, however, is white, or grayish white; it occurs compact, massive, granular, crystalline; its fragments are generally rhomboidal; cleaves readily by the knife in the direction of the natural joints, forming rhombs, with smooth polished faces, transparent or translucent; cross fracture uneven, but difficult to be obtained, from the ease with which it divides at the natural joints, scratched by the knife. Heated alone in the flask or matrass, yields no moisture. Before the blowpipe, on charcoal, infuses, if ture; does not tinge the flame, but glows with peculiar brightness when the carbonic acid has been driven off. Loses by complete calcination about 43 per cent.—becomes caustic, heats with water, and acts as an alkali. Effervesces when dropped in acids. Specific gravity 2.7. Its localities are extremely numerous. Some beautiful varieties are found at Lockport, New York.

Carbonate of Magnesia.—The crystallized variety is white, in delicate needle-shaped crystals, diverging and having the lustre of satin. The compact variety is gray or yellowish; either irregular or sponge-shaped; a splintery or a flat conchoidal fracture nearly opaque; yields to the nail; adheres to the tongue; dissolves slowly in sulphuric acid with effervescence. Before the blowpipe, infusible, but hardens so as to scratch glass—it then acts on moistened turmeric paper, like an alkali. Specific gravity 2.7. Occurs frequently combined with carbonate of lime. Bare Hills, near Baltimore.

Sulphate of Lime.—Gypsum, occurs massive, crystallized, granular, fibrous and compact; prevailing color white; sometimes gray, yellowish and reddish. Crystals flat, or six or eight-sided prisms, but oblique terminations; cleave easily into laminæ, which are flexible but not elastic; lustre shining, pearly; very soft; yields to the nail; frequently colorless and highly transparent. In the matrass, alone, gives off water, and becomes milky white, if pure. Melts into an enamel. On charcoal decomposes in the inner flame, after which it acts like an alkali. With borax, effervesces, and melts into a clear glass of a brownish yellow color when cold. Specific gravity 2.3. Nova Scotia, Niagara and west of New York; found also in the Jersey marl.

Muriate of Soda.—Common table salt is too well known to require description. As native rock salt, it occurs in great quantities beyond the Rocky Mountains, and exists in a state of solution in inexhaustible quantities in the formations of the western states.

Green Sand.—Color, various shades of green, from pretty bright grass green to deep olive green, and almost to greenish black: it has sometimes a dull greenish blue shade. Occurs in loose grains, about the coarseness of gunpowder, which the darker kinds much resemble. When very moist, can be kneaded between the fingers. Between the teeth has the sensation and taste of clay. Found sometimes alone in extensive beds, at others mingled in the loose slate with ordinary sand and mica; is disseminated through the substance of various limestone and sandstone rocks. It constitutes the green marl of New Jersey, and is found extending from that state, south through a great range of country, and far west upon the Missouri.

Oxide of Iron.—The various iron ores are generally too well known to require description here.

Sulphuret of Iron.—Color, brass yellow, passing into steel gray. Occurs in many regular crystalline forms, but more usually in that of the cube

also irregular, brittle; fracture granular; lustre metallic, brilliant; too hard to yield to the knife, which distinguishes it from sulphuret of copper, which yields readily to the knife. Heated in the fire or in an open tube, it exhales the smell of sulphur. Is often mistaken by the ignorant for gold, but its great hardness immediately distinguishes the two. Specific gravity 4.7.

From Communications to the Board of Agriculture.

OBSERVATIONS ON THE UNITED STATES OF AMERICA.

By William Strickland, Esq. of Yorkshire. Received 8th March, 1796.

Mr. Strickland, having been favored with some queries from the Board of Agriculture, before his late visit to the United States of America, in which were pointed out objects of inquiry, connected with the institution of the Board, and particularly deserving his attention, takes the liberty of returning the following answers to them. He is satisfied that they are by no means complete, nor as worthy of the inspection of the Board as he could have wished them to have been; he hopes, however, that the imperfections will prove to arise rather from having omitted much, than from having stated that which is inaccurate; and that it will be considered, that his residence in that country was short, the country very extensive, and that other objects demanding his chief attention, might be very numerous.

York, Feb. 27th, 1796.

"What is the price of land?"

In taking an agricultural survey of the United States of America, our inquiries are rendered more easy in one instance, than they would be, in that of any other country, from the circumstance of one superficial measure only, being there made use of, the statute acre of England. As far as I could find, no other measure is known or referred to; but in other instances, the result will prove very different; in Europe, and in England particularly, mere locality occasionally excepted, the quality of the soil has the chief influence on the price, and will in every country effect it, in proportion as agriculture is well understood. In Europe, the produce of the land is the object of the purchaser, or the rent, which to the owner, is the same thing; in America, quality of soil has little influence on the price; for there, agricultural knowledge in general is at the lowest ebb; for unless the land be actually incapable of producing any thing from being mountain or swamp, the quality of it is little considered in the purchase. This circumstance I should have been apt to have attributed to the great variety of produce cultivated in the country, in consequence of which every variety of land would be applicable to some of them, had I not observed the same uniformity of price, where the kind of articles cultivated was much more limited. In America, the price of the land is chiefly affected by the vicinity of easy conveyance of the produce, or of the great towns on the Atlantic, the chief seats of consumption and export; but the situation of it on navigable waters has always a greater tendency to increase the price, than distance from the coast has to depress it.

One other very essential difference is also to be pointed out; in Europe, rent must ever be connected with price, and that is influenced by the quality of soil; in America, rent is never thought of, for land is very rarely let; what instances of it have occurred, and what information I could procure respecting it, I shall hereafter state; but first, I shall proceed to the price; and with that view commence with Massachusetts, Rhode Island, and Connecticut. These states, being in so many instances circumstanced alike, having no *backlands*, as called, that is, lands lately taken up or settled; being all situated on the sea; all of the same early foundation; covered with an uniform and abundant population; inhabited by the same unmixed race; governed by the same laws, principles, and customs; actuated by the same spirit of order, industry, economy, and enterprize, may properly be taken together, under the general name of

NEW ENGLAND.

This is universally an hilly country, of irregular surface, very rocky, in most parts great masses of stone lying on the surface, or starting abruptly from it, but no where what may be termed mountainous; the green-woods, [green-mountains] as they are called, running along the western extremity of it, and which are part of that chain of mountains which traverse the continent of North America, in the north-east and south-west directions, are here of no very great height, and would, I believe, admit of cultivation in almost every part of them; certainly where I crossed them in the north-west part of Massachusetts, where they by no means come under the description of mountains. The soil of New England has in general a tendency to clay, variously mixed with sand and loam, but nothing of a calcareous quality is known in any part of it.

The country is chiefly applied to the breeding and grazing of cattle and sheep; for which, from the verdure, and great inclination to produce herbage, it appears to be particularly calculated. No great quantity of grain is grown; I believe not sufficient for the maintenance of the people; so that in general the consumption demands import, certainly never admits of export.

All along the coast of New England, as far north as Boston, land sells on an average by the farm at from £3* to £3 15s. per acre, and is eagerly sought after at that price; much of this land is not of a good quality, and all of it greatly exposed to the influence of the sea. About Boston the price is considerably higher, particularly if near the town; a gentleman residing there, has an estate within three miles, consisting of three hundred and eighty acres, divided into two farms, which he has great difficulty in letting, and then only for £52 10s. per annum of which he does not receive more than £30, the rest being laid out in improvements and cultivation; besides which, he partly stocks the farms, having twenty cows upon them, his property. Supposing the land to be worth £3 15s. per acre, this estate,

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* I have throughout reduced the various denominations of money met with in the United States, and the various currencies of the different states, to sterling; in larger sums, omitting minute fractions, but inserting them where their relative proportion to the sum could be of any material value.

cows included, does not net more than two per cent.

No person here will rent land.

About Dudley, land sells at £6 per acre, and upwards.

About Hartford, it will not produce more than three and a half per cent., and it is difficult to let it at that rate. A gentleman there, eight years since, gave £4 10s. per acre for some wood land, and has since been offered £9 per acre for the wood only; timber and wood having doubled in price, in every part of New England, within ten years.

Very good land about the town of Springfield, will let, so as to produce five per cent. About Northampton, land, on the banks of the Connecticut, of most excellent quality, fit for every purpose of pasturage or cultivation, would sell for £5 5s. or £6 per acre; in favorable years this land would produce as high as twenty bushels of wheat, per acre, but more commonly produces fifteen or sixteen. About Chesterfield, land will sell according to situation, from £2 5s. to £4 10s. per acre. Here I saw a farm of one hundred and eighty acres, which three years since cost £135 in a very rocky, steep, and wet situation, but very abundant in grass.

Here, therefore, the average price is £4 per acre, and pretty uniformly declines as it is situated more inland, except in the instance of the range along the coast, the price of which may probably be lessened by its exposure to the sea; and the land appears to pay about three and a half per cent. interest.

NEW YORK.

This being the state in which the greatest land speculations take place, and to which the emigrants from Europe, who have any property, chiefly turn their attention, which from climate, the cheapness and plenty of land, the convenience of transport, the nature of the government, and laws and manners of the people, seems to hold out the most favorable circumstances for settlement, it will require to be particularly examined. In the immense range of country in the west part of this state, land may be got on very low terms; much of it is yet barely known, and much of it is either yet *unlocated*, or if *located*, only by those land jobbers who have purchased from the government of the state, vast tracts at very low prices, with a view to sell them again as soon as population should approach their districts.

The lower part of this state much resembles the country last described, being rocky and uneven, but in most places admitting of cultivation. About fifty miles from the coast, the country is traversed by the before mentioned range of hills, called, properly enough, the Highlands of New York; they are of considerable but unascertained height, probably about one thousand, or one thousand two hundred feet, and in many parts are entirely covered with woods, and apparently never will admit of cultivation, and may extend in breadth about fifty miles; beyond them is a fertile, beautiful, irregular country, extending to Albany, and thence back many miles to the country now only beginning to be settled. The soil much resembles that of New England, and has nothing of a calcareous quality known in it. This is the granary of North America; and a great quantity of wheat is now brought to Albany, from at least an hundred miles beyond it, grown on the banks and branches of the river Mohawk.

From the state of New York, many parts of the continent are supplied with grain; and from the city of New York, and the ports on the river Hudson, more grain and flour are exported, than from any other port in the union, except perhaps Philadelphia. Here also grain is cheaper on an average than elsewhere, according to the present price, by at least sixpence per bushel.

Fields within two miles of New York will let for from £2 14s. to £3 7s. 6d. per acre, to gardeners, &c.; in some instances I am told at still higher prices. An estate within and joining to New York, bought five years since for £1575, was sold in the summer of 1794 for £7312 10s. and was (in September, 1794) again selling in lots for building upon, and the purchaser expected to clear a very large sum. Another estate near New York, confiscated during the war, was purchased about seventy years since for £956 and sold lately for £112,500.

Phillips's Manor, which was likewise confiscated, was sold by the state for various prices, from 11s. 3d. to £5 12s. 6d. per acre; no average for the whole can be drawn, some of it being incapable of cultivation. Near Mount Pleasant, £393 15s. was asked for ninety-six acres, of which thirty were wood, with a good new house upon it worth £56 5s. or per acre £3 10s. Near Peckskill, a farm of four hundred and forty acres, one hundred of which were cleared land on a stream in a valley, the rest wood on mountains, not much of which was capable of cultivation, but in the woods sixty head of cattle might be maintained, would let for £14 per annum, and the price asked for it was £393 15s. or per acre 17s. 10d.

A farm near Kings Ferry, of two hundred and forty acres highly cultivated, well planted with fruit trees, in their prime, a good house upon it, with every thing in good condition, lately sold for £3375 or per acre £14 2s.; but then a convenient situation for trade added greatly to the price.

At Fishkill, a farm of one hundred and forty acres cost £223 15s. or per acre £2 6s. 3d. Close to the town of Poughkepsie, land sold at £28 2s. 6d. per acre, in small quantities.

Near Clermont, an English gentleman purchased five hundred acres for £2812 with a good house upon it, which was reckoned in the purchase at £562 10s. every thing in excellent condition, one hundred and fifty acres of it containing very fine timber, and the whole lying on the Hudson, or per acre £4 14s. This was reckoned a good purchase.

At Stephen-town, about twenty miles from Albany, and as many from water carriage, land sells at from £2 5s. to £2 16s. per acre. A gentleman in Albany bought a farm near that place, in 1789, for £22 10s. which he has since sold for £393 15s. and supposes it now worth double that sum.

Many tracts in all this country to the westward, bought within these few years, have since been sold for ten-fold profit; and in small tracts for much more.

An estate of one thousand acres, two hundred and fifty of which are best *river side* land, the rest pine land, but level and capable of cultivation, and some already cultivated on the Mohawk, opposite Schenectady, beautifully situated, with an house upon it, estimated in the purchase at £562 10s. is to be sold for £5625; or per acre about £5.

An extensive patent of excellent land, on the Mohawk, belonging to an English nobleman, was lately sold for less than 4s. 6d. per acre; while ten thousand acres very near it, through which the river ran, and which was sold four years since for 7s. 10½d. per acre, was at the same time again upon sale, and the price asked for it £1 2s. 6d. Many men of family and fortune in England possess large tracts in this state, and the land speculators of the country are particularly eager of dealing with them.

A gentleman gave, in 1791, £22 10s. for six hundred acres of soldiers' grants, and sold them, in 1794, for £331 10s. or 11s. per acre. A few years after the peace, he gave £16 17s. 6d. for one thousand acres in Jellisfonda, which he sold in November, 1794, for £393 15s. or per acre 7s. 10d.

Land at Konondaigua, on Seneka lake, which in 1789 would scarcely sell for 5d. per acre, two years afterwards sold for 2s. 9d.; four years after for 6s. 2d.; and I saw some of it sold in 1794, by public auction, in tracts of three hundred acres and upwards, for 8s.

A gentleman bought a tract of land in 1792, at Konondaigua for 2s. 3d. per acre, which in November, 1794, he sold for 9s. to one who purchased it to sell again.

A gentleman of rank in England, about the year 1790, purchased one million of acres on lake Ontario, in what is called the Chenesse country, for about 1s. 10d. per acre, which would in November, 1794, fetch from 4s. 6d. to 5s. 6d. when sold in large tracts of one thousand acres or upwards, and about 13s. 6d. when sold to settlers in smaller parcels, who have ten years credit; paying interest at the rate of seven per cent. during part of the time, or who purchase on some such terms, according to agreement.

A person of Hudson, had a large tract on the west of Lake Seneka, which he bought of the state in 1787, at 7½d. per acre, and which, December, 1794, sold for 6s. 9d. to a speculator to sell again. This land lies the farthest west of any I have yet heard of, being sold in this state; beyond it, the country is scarce known.

A person residing in Upper Canada, has a *township* of land consisting of one hundred and thirty thousand acres, at the junction of the Oswegatchi and the St. Lawrence, for which he was offered in January, 1794, 7½d. per acre, having put it up to sale at New York, to see whether it was at that time of any value; but many people having removed into that country, in the course of the summer, he was offered, in December, 1794, 4s. 6d. per acre for it.

Hence the average price of land, in the old settled country below Schenectady, (rejecting such as being mountainous is little capable of cultivation, and such as for mercantile purposes, or from being in the vicinity of large towns, is of increased value) appears to be £3 7s. 10d. per acre, and of the new settled country to the west of it, 9s. 3¾d.

So little land is rented in this state, except in the vicinity of towns, that there are no grounds on which to state the interest paid by purchases; I suspect, however, that it no where exceeds three and a half per cent.; but considerable tracts of land in the old Dutch patents, are what is here called, but improperly, rented; being granted out on leases for three lives, renewable on certain immutable terms, or on very long leases, or leases for ever, with a certain reserved rent usually in wheat, as from fifteen to twenty bushels per hundred acres, with various feudal services and payments annexed, of varying and uncertain value; but these do not afford sufficient data, on which to calculate the rent or interest. Proprietors of lands in this state are still in the habits of granting them out on similar terms.

NEW JERSEY AND PENNSYLVANIA

May very properly be taken together, the former appearing, as it were, part of the latter, extending eastward towards the sea; great part of it is a low, flat, sandy, wet unhealthy country, little frequented, and less cultivated. Inland of this tract in Jersey and Pennsylvania, is a dry, rising, irregular country consisting chiefly of what is here called isinglass land, a sandy soil full of micaceous particles, glimmer, and talc; from which the surface of the country, while the sun is shining, acquires a singular appearance; most of the remainder is a deep red loam approaching to clay, and which probably would have most of the properties of it, in a climate where there was more wet and less sun, is of great fertility, and capable, by proper cultivation, of producing every thing of which the climate will admit.

This country continues, with considerable variations in parts, to the chain of mountains which traverse the two states. These mountains are chiefly composed of micaceous granite, in some places on a limestone or marble base; they run in parallel ribs of great height,* and are in general very barren, and covered in many parts with shrubs and trees of humble growth, but divided by extensive and fruitful vallies, and may extend in breadth about sixty or eighty miles. Beyond them to the west is a vast tract of country, said to be fertile and fine, but not much known; and though the whole of it may perhaps be held under patents from the state, it is hitherto very thinly inhabited, and the greatest part of it not at all. Lots in the town of Paterston in Jersey, of one-fourth of an acre, sell for £15.

Near Brunswick, an English gentleman gave, in the summer of 1795, £2100 for three hundred and thirty-four acres of excellent land, fit for every purpose of cultivation, or per acre £6 5s. This being also in an eligible situation in every respect, was thought a reasonable purchase. A gentleman has two thousand five hundred acres in Jersey, which he lets, though with some difficulty, since so few choose to rent land, in seven farms, at a rent which he thinks pays better than at £4

* The highest ridge of these mountains in New Jersey, near the banks of the river Hudson, has lately been ascertained to be about 3,500 feet in height, above the level of the tide in the river at their foot. (*Transactions of the Society of Agriculture of New York, Vol. I. Part, II. p.* 139.)

per cent. but from this some deductions are to be made. Building lots in the principal streets in Philadelphia, sell at £60 per foot in front, and are from one hundred to one hundred and eighty feet in depth; before I left Philadelphia, I heard of one being sold for £72 per foot in front.

Land upon the Delaware, and the navigable waters that run into it, sell in each state for from £4 10s. to £5 12s. 6d. At two or three miles from water-carriage, at £2 14s. to £3 3s. These last prices I have found to hold through the greatest part of the old settled tracts of Jersey and Pennsylvania, but something lower as the situations are less convenient.

About York, among the Germans, land sells as high as £15 to £18 per acre; in the neighborhood of Lancaster, from £12 to £15; near the town, for £18. I saw a considerable farm, one mile and a half distant from it, that had just then been purchased at the last price; water-meadow land will sell there for £21 per acre; the industry and parsimony of these people having raised the value of land in their neighborhood at least two hundred per cent.

The best land in Jersey, and in that part of Pennsylvania which is east of the mountains, exclusive of the German tract, may be settled at about £4 per acre: they certainly average something more than the old part of New York, this tract not being mixed with any barren mountains, and being less rocky and broken.

The back-lands of Pennsylvania sell for considerably less than those of New York: from what information I could obtain, I could not state them at more than 3s. or 4s. per acre; a great quantity was upon sale for less; the tenure of them is less satisfactory than of those of New York, the titles less to be relied upon, and the whole having less credit, many egregious frauds having been committed upon purchasers, particularly those in Europe.

Very little land is let, few of the people born in the country being ever willing to become tenants, and farmers from England, who alone would be tenants of any value, are very few in number, and those, as far as I can find, in general not of a very respectable description. Custom or ignorance can alone cause this objection; since they who purchase land purchase it with money that would otherwise afford them seven or eight per cent. at the least; whereas if they rented land, it would be at a rate that would not pay more to the owners of it, than an interest of three or four per cent.; a great gain this to the tenant, who would besides have many indulgencies. So great is the difficulty of procuring regular tenants, that people here, who possess more land than they choose to occupy, or can cultivate themselves, are getting much into the way of letting it upon shares; a system which nothing but extreme poverty, or extreme ignorance, can vindicate.

This evil is rapidly increasing; an instance of this tenure I have before noticed at Boston. I have not yet heard of any in New York; but in Jersey and Pennsylvania instances are too frequent; to the south of these states I have met with none.

A country thus occupied must ever be in the worst cultivation, and both owner and occupier in a state of poverty. The terms of this tenure are various, according as agreements can be made; in some instances, the owner finds half the seed, and half the live stock, the tenant every thing else; and he has half the produce; in other instances, the owners find half the live stock, and have one-third of the produce, &c.

Want of capital in tenants, the difficulty of procuring them, and their ignorance when procured, was the cause assigned for this wretched mode of occupation; but it was observed, that under this tenure, the owner could command the mode of cultivation; and that therefore, such lands were better cultivated than others: this, however, presumes the landlord to be more intelligent than his tenant. The extent of the evils arising from this mode of occupancy, many parts of Europe sufficiently show: wherever it is found, poverty, and the worst of cultivation attend it, as ever must be the case, where the interest of the owner and the occupier are at eternal variance; here, the owner purchases the worst of stock, because it is the cheapest, and another is to have the management of it; and the occupier bestows the least labor, because another is to have half the profit of it. It was scarcely to have been expected, that such a system should have crossed the Atlantic.

DELAWARE AND MARYLAND

May with propriety be joined together. The former is of small extent, and occupies only one-half of that peninsula which lies between the two great æstuaries of Delaware and Chesapeake, each side of which peninsula much resembles the other. The whole of Delaware, and the adjoining part of Maryland, is a low country, apparently the creation of waters. It has in general a tendency to sand, is not much elevated above the sea, is fertile upon the coast, but swampy and barren within land. That part of Maryland that lies upon the opposite side of the Chesapeake, is in general sandy and gravelly; in places elevated into hills generally barren; and much worn out with the cultivation of tobacco.

The farther it proceeds west, till it arrives at the mountains, the more fertile it becomes, is less sandy, and at last, about Frederick, changes to that rich, red, friable loam, before noticed in the last states, here generally lying upon a steatite or soap-rock, which in many places rises to the surface. These two states are the first in proceeding towards the south, in which negroes abound, and in which the evils of slavery first appear, though here laying no very heavy burden upon those who are doomed to bear it; and here, slavery is rapidly giving way to emancipation. This state has no *back-lands*, and no territory of any great value west of the mountains, as in that part the Potomac, its southern boundary, and the Pennsylvania line its northern, contract within a very narrow space.

As the metropolis of the American Union is now building in this state, and is to become the seat of government in the first year of the next century, a very considerable rise in the price of land, and some improvement in the cultivation, will probably soon take place.

About Dover, in Delaware, land sells for £3 12s. per acre. About Buck's tavern, £3 18s. One thousand seven hundred acres, a few miles below Wilmington, were lately sold at £4 per acre. An English gentleman lately bought some on the Delaware, at £7 4s. but it was supposed

with mercantile views. A person has two hundred and fifty acres of excellent land near Middletown, for which he has been offered £6 per acre; he lets them for £90 per annum, and binds the tenant to cultivation, or per acre 7s. 2d.; they pay an interest of £5 19s. 5d. per cent. On Wye river, in Maryland, a gentleman has several thousand acres, that produce him from £18 to £24 per hundred acres, chiefly paid in wheat, or per acre 3s. 7d. to 4s. 9½d. As such land would sell on an average of £6 12s. per acre, it pays an interest of from £2 14s. 3½d. to £3 12s. 7d. £7 14s. per acre was lately offered for half an island in the Chesapeake, called Chew's Island, which contains above two thousand acres, and refused. On Bohemia river, average price of land is £4 16s. some as high as £7 10.; if good wood land, which is much sought after, for at least £9. About Perry Hall, the general average of the country is £3 6s. Three or four miles from Baltimore, land will sell for, from £15 to £18 per acre; and small lots, near the town, from £36 to £42.

Old worn out land, without timber, on the Patapsco, thirty miles from Baltimore, has lately been sold at 9s. per acre. A gentleman has land at the back of the new city of Washington, which forty-five years since, cost £25 per hundred acres, for which he has lately refused £30 per acre. About the upper falls of the Potomac, land, equal part of wood and clear, will sell for about £3 12s. per acre. Land on each side of the Monocacy, will fetch from £3 to £4 4s. per acre; a mile or two from Frederick, ten guineas; close to the town, £18.

From the above, and many other notes taken in the state, it appears, that land here, excluding as I have before done, whatever is of increased value from mercantile situations, or the vicinity of large towns, sells at £4 17s. per acre; a price considerably higher than is to be met with in any other state in the union; more land also is let, and the interest paid by it, is higher; the causes of which I shall hereafter assign, when the prices are recapitulated and collected. The result of various notes, proves the rent to be about 5s. per acre, and the interest paid by land, about four per cent.

VIRGINIA.

This immense country possesses every variety of soil and surface; below the falls of the rivers, that is, for the space of the tide-waters, which may extend from the coast about one hundred and twenty miles, the country is very flat, apparently of late ages risen out of the sea, in many parts abounding with extensive swamps. The soil is in general a fine white sand, except on the banks of the rivers, not fertile, and much of the natural produce is cedars and pines, always indications of a poor soil. The country in general is very unhealthy, infested with fever and ague, and bilious complaints, as may be expected from such a surface, in such a climate; and is much worn out, having been long settled, and the chief produce tobacco. Above this, is an irregular waving country, lying for the most part in ridges, gradually falling down to the nearest rivers on each side, and high in proportion to their distance: this tract, which may extend about eighty miles inland from the head of the tide, in its original state, has not been fertile except on the banks of the waters.

Beyond this to the foot of the *Blue Ridge*, across, and comprehending what are called the South-West Mountains, but which are only a range of hills, a step to the Blue Ridge, capable of cultivation in almost every part, is a tract of the same red land before noticed, as lying to the east of the mountains: it is here of its deepest red; deep as red ochre or chalk, and with its intensity of color, has acquired its utmost fertility. A richer district by nature there cannot be, than all those counties which lie at the eastern foot of the Blue Ridge; but, like whatever on this continent has been long cultivated, they are nearly exhausted. Beyond the Blue Ridge, and various other ridges lying west of it, and parallel to it, are extensive vallies, from five miles to thirty in width, the plains of which are highly elevated above the sea, but lying between mountains far more elevated. The soil of these vallies is calcareous, lying every where upon a limestone, or marble, the same as constitutes the basis of the mountains, which are themselves chiefly granite, quartz, and steatite. These vallies I traversed from Carolina to Pennsylvania, in June, 1795, with infinite pleasure: it is a delightful region, refreshed with frequent showers collected on the mountains, enjoying the ventilation and cool breezes of a northern climate, with the perpetual sunshine of a southern latitude.

In a state, the soil of which varies so greatly, in climates the most desirable, as well as the most noxious to the human frame, the value of property must differ in proportion; and that it does so, will appear in stating a few instances on each side of the mountains, and then the average of each.

On the lower part of the Rappahannock, on each side of it, land, on the banks, will sell for £1 11s. 6d.; at some distance from the river, from 18s. to £1 2s. 6d. On James River, below Richmond, £1 10s.; in a few very favorable situations as high as £4 10s.; upon James River, above the falls, at £4 10s. A few miles from the river £1 10s. and £2 5s. Upon the South-West Mountains, for no where more than £2 5s. The best red land in the counties of Orange, Albemarle, and Amherst, than which, none in nature is more fertile, or better adapted to clover and wheat, may be bought for 18s. per acre; I saw a considerable tract that had lately been purchased for 16s.

To the west of the Blue Ridge. Good land in Rockbridge county, sells for £4 10s. Land in general, including rocks and woods £1 10s. About Patten's ordinary,* for about £3 7s. 6d. A farm, at this place, was shown me by the proprietor, containing eleven hundred acres, one-third of it cleared, and somewhat cultivated, which he had lately purchased at £2 5s. per acre, which was thought very reasonable. (Immense tracts of all these mountains, of which one thousand acres would not be worth a shilling, and which have been neglected till within these two or three years, have been taken up by the land jobbers to sell, and are now sold, or selling in Europe.) About Newtown, most excellent land for pasturage will

* Inns or taverns in the country parts of Virginia, are called ordinaries.

sell for from £6 15s. to £7 10s. per acre. The average rate of land in the country about Winchester, from £2 5s. to £4 10s. in some instances, near the town, £7 10s. Upon the Shenandoah, the usual price is £1 11s. 6d.

To the west of the Allegany ridge, is a vast tract of back country in Virginia, lying upon the great Kanawha river, one of the branches of the Ohio, but little known, inhabited, or cultivated, and in which the lands sell at very low prices: forty thousand acres were, in the spring of 1795, advertised in a Philadelphia paper to be sold; the terms proposed, were 7d. per acre, one quarter to be paid in hand, and the rest in two equal annual payments; other vast tracts in Virginia and Kentucky were then also upon sale, the usual price asked for which was 1s. 1½d. per acre, with considerable time allowed for making the payments.

Average to the east of the Blue Ridge, £1 19s. 8d.; to the west of it £4 3s. 10d. As far as I know, no lands are let in Virginia; therefore, there are no means by which, with tolerable accuracy, to ascertain the rate of interest for money employed in the purchase of lands.

OF THE SOUTHERN STATES

I can give little account; in all of them the land sells at a very low rate, and lower as it lies farther south.

A merchant in Philadelphia, in the summer of 1795, purchased one hundred thousand acres of land in Georgia, beginning about four miles from Augusta, the capital of the state, and lying on the road to Savannah, at 4½d. per acre.

RECAPITULATION.

	Price per acre.			Rent per acre.			Int. paid by land.
	£	s.	d.	£	s.	d.	
New England - - - - -	4	0	0	-		-	3½ per cent.
New York (old settled country) - -	3	7	10	-		-	3½ ditto.
Ditto (new country) - - - -	0	9	3¾				
Jersey and Pennsylvania (old country)	4	0	0				
Ditto (new country) - - - -	0	3	6				
Delaware and Maryland - - -	4	17	0	0	5	0	4 per cent.
Virginia (east of the Blue Ridge) -	1	19	8				
Ditto (west of ditto) - - - -	4	3	10				
Ditto west of the Allegany ridge, about		1	0				

Average of the old settled countries, £3 14s. 9d.

Could the interest be stated with equal accuracy, I should apprehend it would not produce much more than three per cent. when in the hands of the tenant, though the occupier and owner are equally exempt from the payment of almost any manner of tax; but very few will rent land, and none know how to cultivate it, as will be seen, when the rotation and produce of crops are noticed.

Before the Revolution, the laws established a legal interest; in some of the states, seven per cent. in others, eight per cent. and in the southern states, I believe, more. Since the Revolution, congress has never touched the subject of interest; and if the laws in the different states still remain in force, they are become obsolete; certainly no attention is paid to them, but every one makes the most advantage that he is able, of his money, as of any other commodity; and there are sufficient opportunities of making more than what was heretofore legal: this shows that land is little worthy of attention here, and accounts for emigrants from Europe, who, at first with European ideas, turn their attention to land, and wish to become proprietors of extensive estates, soon getting rid of their land, and employing their money on more productive speculations. Land in America affords little pleasure or profit, and appears in a progress of continually affording less; but it would take up too much room here, to state the foundations of these opinions.

Before I had collected, in one view, the particulars of every state, I should not have apprehended that Maryland, notwithstanding the favorable opinion I formed of it when there, in price, rent, and interest, would have stood first in the union. This state, in climate and produce, is more nearly allied to those on the south, than on the north of it; the climate is somewhat productive of those bilious habits and complaints, so dreadfully frequent immediately to the south of it; and, as in the south, the produce has hitherto been chiefly tobacco, which never was cultivated to the north; it has also ever abounded greatly in slaves; but it is more nearly allied to the northern states in its principles, and the liberality of its government; and to these and their consequences, this superiority must be ascribed. The body of the people may not be as well educated as those of New England, but they are fortunately uninfluenced by the wild theories of their southern neighbors: from hence it arises, that as men of property and education have the conduct of the government, it is carried on with the liberality that may be expected in such characters, and the best people of the country feel interested in the prosperity of it. Many persons of considerable opulence and extensive property reside on their estates, see to the cultivation of them, and diffuse knowledge, as far as they are informed themselves: more instances of this kind are to be met with in Maryland, than, perhaps, in any of the other states, and they have an influence of most beneficial tendency. To these causes I must attribute the superior value of property.

"What is the price of labor?"

September 1794. In the city of New York, seamen's wages were from £4 14s. to £4 19s.

per month: were at £4 1s. in the beginning of the summer, and at 36s. and 45s. before the war in Europe. A common laborer, as one to carry the hod, or help in clearing out a ship, 4s. 6d. per day. Carpenters, 5s. 7½d.; masons and bricklayers, 6s. 9d. and 7s. 3¾d.; all other mechanics and handicraftsmen, about 5s. 3d. These several last descriptions of people rarely work more than three days a week, as is usually the case with people of their class in other countries, where wages are too high.

July 1795. Seamen's wages were then risen to £6 15s. Nothing is allowed to laborers in New York city, except sometimes spirits to those who work on shipboard.

The average of the country in the state of New York, for agricultural labor, for six months from May-day, when hired by the month, 1s. 5d. per day; the other six months 1s. 1d.; if for less time, or by the day, 2s. may be reckoned the average of any part of the year. A foreman's wages £14 per annum; for mowing buckwheat, or other light mowing, 2s. 10d. per day; for cradling wheat, usually one bushel of wheat per day.

Exclusive of the above wages in money, every one in the country is provided with victuals, and in harvest expects at least a pint of rum, or other spirits, a day.

Wages appear to have risen, in this state, in the proportion of four to three, or thirty-three and one-third per cent. in the last three or four years.

NEW ENGLAND.

1794, autumn. Laborers by the month in summer per day, 2s.; by the month in winter, 1s. 3d.; if for a less time, or by the day, 2s. 7d. may be the average of any part of the year. Foreman in husbandry, or best working man, £18 15s. per annum. Laborers on the canal of the Connecticut, from 31s. 6d. to 40s. 6d. per month, according to abilities. Carpenters and handicraftsmen about 3s.: the wages in harvest are usually regulated by the price of maize, a bushel of which is allowed for a day's work; this year maize being high, wages are high likewise; 3s. per bushel, or per day; used to be 2s. 3d. All the above laborers, exclusive of their wages, are provided with victuals, and generally with cider to drink.

NEW JERSEY AND PENNSYLVANIA.

1794, winter. Wages in Philadelphia, much the same as in the city of New York. In the country, laborers by the month in summer per day, 2s.; by the month in winter per day, 1s. 9½d.; if for a less time, or by the day during any part of the year, 2s. 3d.; in hay time and harvest by the day, 3s. 5½d. Foreman £24 per annum. Laborers working by the piece at the Conawaga falls of Susquehannah, earn about 3s. per day, which is not too much, considering the unhealthiness of the place, and fatigue of the work.

At Elizabeth iron furnace, some of the head men have £90 per annum. All the common workmen, of which many are free blacks, have £21. All the above have their victuals found them, and in hay time and harvest the workmen expect, and drink at least their pint of rum, or other spirits, a day.

Aug. 1795. Seamen's wages, in Philadelphia, were as high as £7 17s. 6d. per month, and every ordinary seaman received it.

About the same rise of wages has taken place in these states, as elsewhere before noticed.

Somewhat less difference is paid here in wages, in winter and summer, than to the north, the climate admitting of more equal labor.

DELAWARE AND MARYLAND.

1795, summer. White laborers by the day, at any time of the year, 1s. 6d.; free blacks ditto, about 1s. Labor in harvest 4s. 6d. Free blacks by the year £8 8s.: hired slaves £7 4. Overseer, or head husbandman £22 10s. Laborers, on the canal of the Potomac, chiefly men who have worked on the canals in Great Britain, 36s. per month, board, and every necessary being likewise found them, except liquors. All the above have their victuals found them; the hired slaves are also clothed.

At the city of Washington, masons, 6s. to 7s. 2¼d. per day; carpenters, 4s. 9½d. to 6s.; negro laborers (hired slaves) 36s. per month, board and clothes.

Baltimore, mechanics, 6s. per day; common laborers, 4s. 6d.; seamen's wages £6 15s. per month.

Little difference in the rate of wages is made in these states, between winter and summer, the climate admitting of nearly equal labor throughout the year; nor does any rise appear to have taken place in them, except in Baltimore, where the demand for mechanical labor, in the construction of the new city of Washington, seems to have affected it considerably.

VIRGINIA.

Every thing here is performed by the labor of slaves, except on the west of the Blue Ridge, where they are not numerous; there the labor of the white people may be procured, during almost any part of the year, at about 2s. and their victuals; where slaves are doomed to toil, the freeman holds labor to be a degradation. Virginia is in a rapid decline, brought on by her adherence to so pernicious a regimen.

The value of slave labor I have taken considerable pains to investigate and prove, but have not been able to accomplish it to my satisfaction; it is the opinion universally received there, that it is much dearer than that of freemen; but I do not find, that any one in the country, where alone it could be ascertained, have ever undertaken the subject; some say it is more expensive by one-third, others by one-half; all agree in the fact, but none can fix the amount. The price, however, paid for the time of a slave can be easily established, and from that we must reason upon the value of his labor. Great numbers of slaves are hired out in this state by their owners, who may be overstocked, or may not have sufficient employment for them at the time; these are frequently hired by individuals, who are in want of their labor; or by the proprietors or undertakers of public works.

The usual price paid for a slave, employed in husbandry, is £9 per annum; he and his wife may

be hired for £12; but the person that employs them also feeds and clothes them: several hundred were employed on the canal at the falls of James River, in the summer of 1795, all of whom were hired. As these were stout able men, they were paid for at the rate of £11 5s. each, per annum, and their maintenance* and clothing was calculated to amount to the same sum. Suppose, therefore, that the maintenance of the slave that is employed in husbandry, bears the same proportion to the price that is paid for his time; this will make the expense of such a person £18 per annum, or per day rather more than 1s. 2d. As the climate here, as in Maryland, admits of nearly equal labor throughout the year, it may be fair to estimate it at the same rate in each state; in Maryland, it appears that the service of free blacks may be had for about 1s. per day, and of whites for 1s. 6d.; therefore, the time of a slave, in Virginia, is estimated at somewhat an higher price, than that of a free black in Maryland, though at less than that of a white man. But the price that is paid for the *time*, is by no means a proof of the value of the *labor* of the slave; that can only be ascertained by the actual quantity performed, and the goodness when performed; and much more may be paid for it, than actually appears. Now, nothing can be conceived more inert than a slave; his unwilling labor is discovered in every step that he takes; he moves not if he can avoid it; if the eyes of the overseer be off him, he sleeps; the ox and the horse, driven by the slave, appear to sleep also; all is listless inactivity; all motion is evidently compulsory. Any slave, that I have seen at work, does not appear to perform half as much, as a laborer in England; nor does the business, under which the master sits down contented, appear to be half, that we require to be performed by one; if to this be added the slovenly carelessness with which all business is performed by the slave, the great number of useless hands the slave owner is obliged to maintain, the total indifference to, and neglect, not say the frequent wilful destruction, of whatever is not immediately committed to his care, or within his department, and also the universal inclination to pilfering shown by them, I cannot do otherwise than acquiesce in the received opinion of the country, that slave labor is much dearer than any other; and that the price paid for the *time* of a slave, by no means shows the amount of *the value of his labor:* it certainly is much higher than it appears to be; though not knowing the quantity of labor, performed by slaves in general in a given time, in a sufficient number of instances, I have not data whereon to calculate the exact value.

RECAPITULATION.

	per day Labor in summer.		per day Labor in winter.	
In New England	2s.	0d.	1s.	3d.
New York	1	5	1	1
New Jersey and Pennsylvania	2	0	1	9½
Delaware and Maryland (white men)	1	6	1	6
Ditto free blacks, about	1	0	1	0
Virginia, perhaps equal to	2	0	2	0

The average of which will be 1s. 7¾d. in summer, and 1s. 5¼d. in winter; to this must be added the price of their victuals, which I find, in many instances in this country, is estimated at 9d. a day, except in hay time and harvest, when the workmen live something better, and have a larger allowance of spirits, or other liquors; this will raise the wages to something more than 2s. 4¾d. in summer, and 2s. 2¼d. in winter; but it is to be observed also, that as the sun sets three-quarters of an hour later, on the shortest day, at Philadelphia (which is about the centre of the union from north to south) than in London, and consequently rises as much earlier, three-quarters of an hour's labor is gained every day during the winter half year, which is a matter of no small consideration. Likewise, as it is the custom in America for all workmen, in the summer half year, to work from sunrise to sunset, and as the sun rises at Philadelphia at half past four on the longest day, an hour and a half before labor commences in England, and sets an hour and a half after it ceases, here is an additional gain of one hour and a half's labor during the other half year; from which no deductions are to be made, except that sometimes, in the very greatest heat of the weather, workmen are allowed to rest two hours in the middle of the day, instead of one as with us. This is a very great sum gained in the annual amount of labor, and leaves the difference of labor, between England and America, to stand thus:—the average of winter and summer, in America, 2s. 3½d.: average of labor in England, 1s. 4¾.: average of working hours in America, throughout the year, $12\frac{1}{16}$ hours; working hours in England, $10\frac{15}{16}$ hours; the latter hours paid by 1s. 4¾d. is to the former hours, as paid by 1s. 6½d.; therefore, were the wages in America 1s. 6½d. they would be the same as in England, but being 2s. 3½d. they are 9d. per day, or about one-fourth higher than wages were calculated to be in England, in the year 1793;* and the greatest part of this addition has only taken place within three or four years; before that time, wages were much alike in each country; and as wages, in England, are very considerably risen since the calculation in 1793, I ap-

* These men were allowed half a pound of pork each, a day, and three pounds of meal of Indian corn, which last is more than they can consume, with some other little occasional indulgencies; this was estimated extremely good keeping.

* See Young's France, Vol. I. p. 436.

prehend the wages, on each side of the Atlantic, are again nearly upon an equality; I suspect too, that in the climate of America, there will be fewer broken days in the year, or days entirely lost, than in England, where storms and long continued wet weather, either prevent labor, or render what is performed of little value. This refers only to agricultural labor; mechanical labor bears every where a much higher price; but with that I have nothing here to do.

The result of this inquiry is very different from what I expected, and from the generally received opinion; but, as it is a subject of so much consequence, I paid every attention to it; and it is the result of so many minutes, that I have little doubt of the accuracy of it: wherever any information was of a dubious nature, it was not at all noticed in this account. These wages are by no means of that unreasonable nature, that they should affect the prices of American produce, beyond what wages affect similar articles elsewhere; and it confirms also what I have generally heard, that in all the old settled country, there is no want of hands to perform the necessary demands of agriculture, particularly in a climate, in which wet or damps rarely occur, at a season when they would be injurious; or should they unseasonably occur, in which a brilliant sun would not soon take away their effects: this precludes the necessity of employing numerous hands; or of that expedition to which, in less favorable and more precarious climates, it necessarily is had recourse.

"To what circumstance is it owing, that eight bushels of wheat, raised by dear labor, are a profitable crop in the central states? the fact is curious."

With the answer to this question, the rotation and average of crops, the quantity of seed sown, and quality of the grain, are naturally connected. From the reply to the last query, it will be clear that agricultural labor is not dear, or at least not so dear as to have any material effect upon the price of the produce, beyond what labor will have in this country; nor perhaps ought it to have as much, since so little labor is bestowed upon it. As I have hitherto done, I shall divide the country into districts, according to the different descriptions and circumstances of it, and shall begin with

NEW ENGLAND.

This is a grazing country, and applicable to the rearing and feeding of cattle and sheep, producing herbage in abundance, and of excellent quality: no grain is ever exported from this district, and very little is raised in it except maize, on which, and on wheat imported from their neighbors at New York, the inhabitants chiefly depend. The plough is little resorted to, and consequently this district can afford no material information on the subject proposed; for that, we must look to

NEW YORK.

This state is undoubtedly the granary of America; and if America be, or is hereafter to be the granary of Europe, that must supply by her redundancy the wants of the latter, this must be the part that must do it.

The usual course of crops in this state, is as follows: first year, maize; second, rye or wheat, succeeded immediately by buckwheat, which stands for seed; third, flax or oats, or a mixed crop; then a repetition of the same, as long as the land will bear any thing; after which it is *laid by* without seed for *old-field:* or, *burn the woods;* first, wheat; second, rye; then maize for four or five years, or as long as it will grow; then *lay it by*, and begin on fresh woodland: or, burn the woods; wheat four or five years; then one or two maize, or as long as it will grow; then laid by for four or five years for old-field, without seed. A Dutchman's course on the Mohawk: first year, wheat; second, peas; third, wheat; fourth, oats or flax; fifth, maize: in his father's time, the produce of wheat used to be twenty bushels per acre; but he complained much, now that his land only produced ten bushels. The best rotation I met with, was in Dutchess county, where it much prevails: first, wheat; second and third, pasture without seed; fourth, maize, or flax, or oats, or mixed crop: in a good season this produced about fifteen bushels, more commonly twelve.

The land in this county has great inclination to produce grasses, the pasture being therefore good, and carrying, during the two years, a great stock; the succeeding crops are tolerably good also. Manure is rarely made use of; but what little is collected is given to the maize, which requires every support that can be bestowed upon it. Maize is sown early in the spring, and stands till October or November, growing most of the time with great vigor; in the early part of the growth, the plough is frequently used, going first along the furrows, and then crossing them in the contrary direction; and when it is grown too strong to admit an horse among it, hand hoeing is recurred to.

By so much cultivation, the whole strength of the land is thrown into this crop, which is one cause of the wheat being so deficient in quantity, and wheat, except in new land, every where follows maize; another is, the slovenly manner in which, in this succession, it must unavoidably be sown; the wheat is sprinkled among the maize immediately before the last hoeing; and as the land is thrown up in hillocks by the horse hoeing, the crop receives much damage from the weather in winter, as well as drought in summer.

Clover is just beginning to be cultivated, in consequence of which, good pasture and plenty of hay take place of *old-field*, and by the use of gypsum, astonishing crops are obtained.

A bushel of wheat or buckwheat per acre, is the usual quantity of seed; rarely either more or less, but as often one as the other. The average produce of wheat in the state of New York, has been stated to me by a very intelligent person, at twelve bushels to the acre; which agrees with the general opinion, and, I believe, is as high as it ought to be stated. The average of Dutchess county, which under proper cultivation would be a most productive, as it is a most beautiful, country, at sixteen bushels: twenty bushels are every where a great crop. The average of maize may be twenty-five bushels: above thirty is a great crop; that of buckwheat, which is very extensively cultivated, fifteen bushels. With a mode of agriculture, as before stated, it is not to be wondered at, that the produce should be so small; and

it will be found that the average of this state, is superior to that of any other in the union.

How profit is to arise out of this, will now be seen; it has thus been calculated:

Rent or interest of capital, 4s. 6d.; one ploughing and harrowing, 5s. 7½d.; harvest, 4s. 6d.; seed, five pecks, 5s. 7½d.: total £1 0s. 3d. Straw pays for the thrashing. Twelve bushels, at 4s. 6d. the usual price before the present excessive rise, £2 14s. leaving a profit of £1 13s. 9d. As by another mode of reckoning, rent or interest = one bushel, ploughing and harrowing = one and a half bushels, harvest = one, seed = one, taxes, and all other small articles, = half a bushel; together, five bushels; leaving a profit of seven, which at 4s. 6d. amount to £1 11s. 6d. This has been looked upon as sufficient profit, when it was considered that maize, not wheat, is the most profitable crop of the farm, according to the common opinion of the country.

But I think it would be easy to prove, and it is so held by those who have paid most attention to the subject, that maize is every where a losing crop, and has been destructive to America; but it is not to our purpose here to inquire into the fact; should, however, this opinion not be well founded, the £1 11s. 6d. above stated as profit, certainly is not net; because the wheat and the maize must pay for their neglected waste, and also for the worn out old-field, which produces little or nothing.

Should this deduction be allowed, little profit can be found in the present mode of agriculture of this country, and I apprehend it to be a fact, that it affords *a bare subsistence.*

The quality of the wheat of this state, is the only thing that remains to be considered.

The wheat of New York is esteemed the best of any in the United States, and that grown on the banks and branches of the river Mohawk, the best in the state.

I had opportunities of examining considerable quantities of it, at Albany, in October, 1794, and found it in general of a very good quality, clean, and well dressed: the best sample that I could meet with (and which probably was as good as any that could have been produced,) weighed, by the bushel that was said to accord pretty accurately with that of *Winchester*, which is the only measure of grain known upon this continent, 64¼ lbs.: this, I was informed, was the utmost weight of wheat produced in any part of America.

The standard weight is 60 lbs. for all extra weight in all purchases, the grower is paid an additional price; and he deducts in proportion for all that falls short of it. It is good wheat that weighs 58 or 59 lbs.

JERSEY, PENNSYLVANIA, DELAWARE, AND MARYLAND,

Have so many circumstances in common, that they may, in this instance, be taken together: except Pennsylvania, none have any *backlands*, and these have only been settled since the peace, are yet not much known, and little produce has yet come to market from them. These four states much resemble each other in the nature of their climate, and quality of their soil, and, from a long continued course of bad cultivation, are much in the same exhausted state; the crops heretofore have been in the following rotation. First year, maize; second, wheat; third, *rubbish pasture.* By this frequent recurrence of the same crops, the land had become so far exhausted, as not to produce, upon an average, more than six bushels per acre of wheat; and much land still continues in the same course of cultivation; but an alteration has of late pretty generally taken place, in which one of the following rotations will be met with; first year, maize; second, wheat; third and fourth, rubbish pasture: or first, maize; second, fallow; third, wheat; fourth, rubbish pasture; but the fallow is stated to be so very imperfect, as to be little better than the rubbish pasture; or in the same year with wheat, frequently buckwheat standing for seed will be met with: either of these rotations will produce eight bushels of wheat. Clover is in some places just beginning to be introduced, and is said to increase the produce of wheat at least five bushels to the acre, in some such course as the following: first, wheat; second, maize; third, wheat; fourth and fifth, clover: or first, wheat and buckwheat; second, clover; third, maize; fourth, wheat; fifth and sixth, clover, or other variations of these crops.

In the peninsula of Maryland and Delaware, which produces the best wheat in this district, the old rotation of maize, wheat, rubbish pasture, is still continued, and the average produce of it is thought not to exceed six bushels per acre: in some instances, not more than two bushels are produced, and much is so bad as to be ploughed up again.

Not more than three pecks of wheat are sown for *corn-land wheat;* that is, wheat sown after maize, here emphatically called *corn.* From this lamentable state of ignorant cultivation, must be excepted the tract in Pennsylvania, inhabited by the Germans.

This industrious people, fortunate in possessing one of the finest parts of America, the country at the eastern foot of the mountains in Pennsylvania, have, either from superior knowledge when they arrived in the country, or superior attention to the nature of the soil and the climate, brought the cultivation of their country to a degree of excellence, which may vie with that of many of the old countries of Europe: their wheat may be averaged at eighteen bushels per acre; twenty-five bushels are frequent, and instances of thirty are not wanting; sufficient proof of what the country is capable of producing, were the culture of it well attended to. Their barns, their buildings, their meadows and pastures, are all in a style of neatness and perfection, unknown in other parts of America; by the use of gypsum they have clover, and by irrigation, meadows superior, particularly the former, to any I ever saw elsewhere, either in America or England: to them ought certainly to be given the credit of introducing irrigation into this part of America, and, I believe, the knowledge of gypsum into every part of it.

The tract, however, which they occupy, comparatively with the four states now under view, is of so small an extent, that I cannot estimate the average produce of the whole of these four states, at more than eight bushels per acre; the abundant crops of the Germans will not counterbalance the six bushel crops, and those of even less, of so many extensive parts of them. The profit arising

from eight bushels, particularly as applicable to Maryland, has been thus calculated: rent or interest of capital, one bushel and a half; once ploughing and harrowing. one bushel; seed, one bushel; taxes, which are next to nothing, and all other little expenses, half a bushel; total four bushels, leaving a profit of four; straw is reckoned to pay all expenses of harvesting and thrashing, which it could not do, were it not in Maryland particularly valuable, for hay is there scarce, and all cattle are maintained in winter on straw and grain; but these four bushels cannot be fairly stated as profit; where in a three or four year's rotation, fallow and rubbish pastures intervene, their expenses must be paid for by the maize and wheat. The wheat grown in this district, particularly in Maryland, though not the heaviest, is thought to make the best flour of any in the United States; the best will weigh 63 lbs. and there, as in New York, 60 lbs. are held to be the average, according to which purchases are made.

[To be continued.]

REPORT OF THE PRESIDENT AND DIRECTORS OF THE RICHMOND AND FREDERICKSBURG RAIL ROAD.

The board, at its first meeting, appointed Moncure Robinson, Esq., the chief engineer of the company, with instructions to organize his party of assistants, and have the location of the rail road commenced as early as practicable. Both in the location and construction of the road, he was informed, that the board desired to proceed as vigorously as practicable, having due regard to economy and stability of execution. Acting under these general instructions, Mr. Robinson proceeded to organize a party of assistants and to execute during the past summer and fall, minute and extensive surveys, preliminary to the selection of any part of the route. The result of these surveys, has been the location of a line of railway between Richmond and the Mattapony, superior in every respect even to the sanguine anticipations of the board, and the execution of which, will, it is ascertained, be effected at a considerable reduction from the first estimate of the engineer.

The examinations which the engineer is now making between the Mattapony and Fredericksburg, will, it is believed, result in improvements in this part of the line, equally important. Should this belief prove well founded, it is confidently anticipated that the whole expense of the work to Fredericksburg, including the cost of depots, warehouses and water-stations, locomotive engines, cars and carriages, will not exceed an aggregate sum of 650,000 instead of $763,182 21 cents, the first estimate.

At a meeting of the board on the 2nd of October, the engineer was authorised to put under contract in December following, such portion of the line as might then be in readiness. The portion then in readiness embraced 27 miles between Richmond and the North-Anna, and was put under contract by the engineer on the 27th of December, agreeably to previous notice. The work was undertaken generally by highly industrious and responsible contractors, at reasonable prices, and has so far been prosecuted by them with great energy. In consequence, however, of the unfavorable winter and spring, as much progress has not been made towards the completion of their contracts, as it was expected would have been made by this time, and it is feared that the same cause may prevent in some cases a reasonable profit being realized by the contractors. Latterly the work has been prosecuted under more favorable circumstances than existed in the winter and spring, and the anticipation of the board, that this first division of the road would be completed by the close of the present year or very early in the next, they feel confident will now be realized.

The president was authorized at the first meeting of the board, to make purchases of real estate in the City of Richmond for a depot. Under the authority given him, he has purchased lots No. 477, 478, and parts of lots No. 496 and 789; lot No. 477, being at the corner of H and Eighth streets, lot No. 496, next above it, lot No. 478 in its rear, and lot No. 789 next below. By the act incorporating the company, it was requisite that the point at which the rail road was to terminate within the corporation should be approved by the common council. It appearing to the board most expedient, to conduct the rail road from the Richmond Turnpike along H street to a point at or near the intersection of the said street and Eighth street, and for the present to terminate the same by suitable connections with the contemplated warehouses and workshops of the company on the lots before mentioned, a resolution was adopted on the 22nd of December, 1834, requesting the approbation of the common council to this plan, and on the 23rd of that month the common council approved the proposed location of the road and present termination of the same, and authorized the prosecution of the work within the limits of the city on the said location. The warehouses and workshops have since been put under contract and are now in progress, and no doubt is entertained that they will be ready for use at as early period as will be necessary to meet the construction of the first division of the road before mentioned.

Arrangements have been made for placing on this portion of the road immediately on its completion the requisite engines and cars for the accommodation of the trade and travel. So soon also as this portion shall be ready for use, Messrs. Edwin Porter & Co. have agreed to connect with it their lines of stages and steamboat transportation to and from Washington City, and to deliver and receive passengers and their baggage on and from the cars of the company. As the accomplishment of this portion of the road will reduce the distance to Fredericksburg, now 67 miles, to 59 miles, and the time of travelling it more than one-third, it is obvious that the whole travel through Virginia on the northern and southern mail route must pass upon the rail road as soon as this first division of it shall be in readiness for use.

In view of this result the board confidently anticipate being enabled to declare a dividend to the stockholders in little more than twelve months from the present time, and before much more than fifty per cent of the stock shall have been paid in.

At an early meeting of the board Dr. Joseph M. Sheppard one of their body, was requested to make proper arrangements with the owners of such lands on the route as were required for the purpose of the company, and in those cases in which no agreement could be made with the owners, to take

proper measures to have lands condemned and damages assessed according to law. The board are pleased at being enabled to state to the stockholders that the benefits of the improvement to the country through which it passes, appear to have been generally appreciated by the land owners. In most cases, releases of damages have been freely given, and in others where it has been necessary to apply to the courts for the appointment of freeholders to assess damages, their awards, except in a few instances, have been fair and reasonable.

A different view of the subject, by the owners of lands, or by commissioners, would scarcely have been anticipated. Forming as this rail way does a link in the great line of communication between the north and south, and executed on a route so cheap and favorable, there is every reason to believe that in a very short period the maximum dividend allowed by the charter may be expected from the northern and southern travel. When that period shall arrive, it would seem to be the clear policy of the company to charge on the transportation of produce and merchandize tolls very little, if at all, higher than may be necessary to pay the expenses of transportation, and to look for the profits of stockholders, to the travel chiefly, perhaps entirely.

The act incorporating the company, authorized subscriptions to be received to the amount of $700,000, of which three-fifths would have been $420,000. The subscriptions actually received during the ten days that the books were originally kept open, amounted to $305,200; being $114,800 less than three-fifths. One of the first questions before the board was as to the expediency of re-opening the books of subscriptions. Satisfied as the board was of the future productiveness of the stock, they entertained no doubt that if the books were re-opened for the purpose, there would be a prompt subscription on the part of individuals of the balance requisite to make up the three-fifths, but they resolved in the first instance to offer to the corporation of Richmond, the option of subscribing for this balance, or for any portion thereof. The common council declined acting upon the subject. After they so declined, the board allowed the books to be re-opened on the 19th of November, 1834; and subscriptions were received on that day, to the amount of $44,600. On the same day a memorial to the general assembly was adopted, asking a subscription by the commonwealth when three-fifths of the capital stock should have been subscribed by individuals. While this subject was before the general assembly, the board had reason to believe that the deficiency in the subscription of three-fifths by individuals, though small, might yet be urged as an objection to the usual subscription in such cases by the state, and on the first of January, 1835, the books were re-opened and additional subscriptions received to the amount of $75,000; making the whole sum subscribed by individuals $424,800, or 4,800 more than three-fifths. After this, an act was passed authorizing the board of public works to subscribe on behalf of the commonwealth, and requiring that board to make the subscription, when it shall appear that at least one-fourth of the private subscriptions of not less than three fifths of the capital stock have been actually paid up, and when certain other conditions are complied with. All these conditions will be immediately complied with, and the board of public works, it is presumed, will thereon make the subscription. When this subscription shall have been made, the whole capital stock will be subscribed that is at present allowed by the charter of the company.

In their applications both to the common council of Richmond and to the legislature of Virginia, the opinion of the board was expressed as to the future productiveness of the stock. The gradual rise in its price from par to seven dollars and ten cents per share above par, furnishes strong evidence that, in the judgement of the community, that opinion is well founded. The board now venture to express their belief that within a very short period after the completion of the work ample evidence will exist of its value in adding to the trade of the city and developing the resources of the state.

A branch rail road which has been projected from the neighborhood of Taylorsville to the South West Mountain, for which it is understood a charter will be asked at the next session of the legislature, must add largely to both the trade and travel of the road, and may be expected to stimulate the industry of the region through which it will pass, by conveying its products more cheaply and quickly to market. A rail way to connect the Richmond and Fredericksburg Rail Road with that between Petersburg and the Roanoke, will, it is believed, be equally an object of legislative attention. The execution of these two works must promote greatly the public interest and convenience, and at the same time add largely to the productiveness of that committed to the undersigned.

With such motives to impel the rapid completion of the enterprize, the board have made all their arrangements to effect the work between Richmond and Fredericksburg at the earliest practicable period. The location having proceeded beyond the North-Anna, a resolution was adopted on the 16th of May, 1835, authorizing the engineer to put under contract from time to time, further portions of the line. And it is now confidently believed that the whole line between Richmond and Fredericksburg will be in readiness for the transportation of passengers, merchandize and produce, in eighteen months from the present time.

The following persons were unanimously re-elected president and directors, to continue in office until the next annual meeting, to wit:

JOHN A. LANCASTER, President,

NICHOLAS MILLS,
CONWAY ROBINSON,
JAMES BOSHER,
RICHARD B. HAXALL and
JOSEPH M. SHEPPARD, } Directors.

WM. P. SHEPPARD, Secretary,
R. F. & P. R. R. C.

22*d June*, 1835.

THE SHEEP DOG TAKEN.

Riga, May 9, 1835.

Sometime last fall a strange dog commenced depredations among the sheep in Avon, destroy-

ing some nights between 20 and 40. He soon became the terror of the town, and various measures were resorted to by individuals to destroy him, but without effect. To such an extent were his depredations carried, that at last the people turned out *en masse*, and drove him from the town; but not, however, until he had killed between three and four hundred sheep—merely sucking the blood and seldom feasting upon the carcasses.

He was next heard of in the vicinity of Pine Hill, Genesee county, last winter, where rising of one hundred sheep became his victims. From that place, as at Avon, the people, before getting rid of him, were obliged to make a general turn out. The dog was driven into Bergen, and in that town and this, (Riga) he has within the last two or three months, destroyed over 300 sheep and lambs, having been alternately driven from one town to the other.

Although the dog has been hunted by various individuals, (the army often amounted to hundreds) since he took up his unwelcome residence in the town last named, and notwithstanding some of the best marksmen in these towns, as well as those where he has pursued his work of death for six months past, have made frequent shots at him, he has never to my knowledge, asked for quarters, nor was he finally conquered until this evening.—It was yesterday determined to make a general assault upon this common enemy, and take him if possible; and a reward of about $80 having been previously offered, by a subscription for his scalp, about two hundred persons belonging to this town and to Bergen, headed by General, Major, Colonel, Captains, and other necessary officers, took up their line of march to-day for the south part of this town, where he had last been seen, and about noon routed and drove him into what is called Adams' Swamp, which was immediately surrounded; dogs were sent in to drive him out, and about six o'clock he emerged from the woods, and in crossing the road leading from Mr. Adams' to Buel's corners, was shot through the heart by Roswell Parish, Jr. of this town, a lad aged about 17 years.

By the blowing of horns and firing of guns, the company was soon congregated—the fallen foe was placed in a wagon—the company were formed into a double file, at the head of which as a mark of honor, was placed the fortunate young marksman. The procession then marched to Riga corners, where the dog was hung up by the neck and a general salute fired—after which they proceeded to Bergen corners, where they took the skin from the dog and stuffed it.

From the St. Louis Commercial Bulletin.

PETRIFIED BUFFALO.

This extraordinary curiosity was discovered about two years since by some trappers belonging to Captain Bent's Company, lying on the side of one of the beaver dams of Rio Grande of the north (a stream emptying itself into the Gulf of California) whose waters, it is said possess the petrifying qualities to an eminent degree; its shores abounding in specimens of various animal and vegetable productions in a petrified state. The petrified Buffalo is described by those who have seen it, to be as perfect in its petrifaction as when living, with the exception of a hole in one of the sides, about four inches in diameter, around which the hair has been worn off, probably by the friction of the water, in which it must have lain for ages past to have produced such a phenomenon. The hair on the hump, and shoulders, neck, forehead and tail, though concentrated into almost a smooth surface, may be easily discerned. The horns, eyes, nostrils, mouth and legs, are as perfect in their stone as in their pristine state.

The country in which this rare specimen was found, is inhabited by the Euteaux, a roving tribe of savages, who subsist, a great portion of their lives, on insects, snakes, toads, roots, &c. This tribe being particularly hostile to the whites, renders the acquisition of this curiosity an undertaking not a little hazardous. Notwithstanding this, and many other difficulties to be surmounted, such as distance, expense, &c. our enterprizing citizen, Captain Charles Bent, contemplates procuring and bringing the specimen to the United States with him on his return from Santa Fe, during the ensuing autumn. We heartily wish him success in his praiseworthy undertaking.

From the Leesburg (Loudoun) Genius, June 13.

THE HARVEST.

The time is near at hand when our farmers are wont to cut their harvest. Sad and gloomy is the prospect, not only in this county, but as far as we have heard, with very few exceptions, throughout the wide and diversified country. There are some farmers in Loudoun, who, owing to the localities of their farms, will make nearly an average crop; but they are few. By far the greatest part will not reap more than their seed, with perhaps a sufficiency for domestic use and enough to defray the expenses of harvesting. Others will not make their seed. This is certainly very discouraging, and must have a tendency to enhance the price of wheat and flour very considerably.

From the New York Star.

AMERICAN CHAMPAGNE—TRENTON HEIDSIECK.

We have been informed by a gentleman who is thoroughly conversant with the subject, that the universally favorite and fashionable wine champagne, is manufactured or rather counterfeited at Trenton, New Jersey, to an incredible extent. A large establishment has been built, warehouse, laboratories, &c. for three or four hundred boys and girls, making wicker baskets, and an immense number of bottles, branded corks, such as "anchor," "hard," "comet," "Joly," &c.—and also, expert alchemists in compounding these articles, imported for the express purpose from the vineyards of *la belle France*. Well, if these precious drinks are from the incentive of high prices to be counterfeited, we know no more exquisite domestic nectar than our famed Newark cider, which, with all the honey in our market, have, we learn, been bought up for the Trenton factory. Such a composition must be infinitely superior to the mock champagne manufactured in France, which is impregnated often with the deleterious admixture of sugar of lead. The Trenton Heidsieck, with its leaden caps and false bottomed bottles complete,

bring, we hear, a ready sale at $7 the dozen, in baskets. A gourmand, an epicure we should say, was most beautifully bamboozled the other day with this cheap champagne, and boasted at a dinner party what an admirable bargain he had made.

For the Farmers' Register.

CULTIVATION OF MUSHROOMS.

Whoever has been accustomed to eat mushrooms, will certainly allow them to be one of the greatest dainties the earth affords, especially the *morel*, *truffle*, and *champignon*. The morels chiefly appear in April, and the truffle about that time may be dug out of the ground; for they never appear above the earth. Those who make it their business, in foreign countries, to gather the truffles, have only one way to find out where they grow, and that is by the help of a hog, which they lead in a string through the woods, suffering him to root the earth as he goes along; for swine being very voracious of them, discover them by their smell, and turn them out of the ground. These kinds have never, I believe, been cultivated, although they are sometimes found upon our plains and commons. The champignous may be raised in gardens in the following manner. Dig a trench six inches deep, lay in it the dung of horses, mules, or asses, then cover the dung about an inch thick with fresh earth, such as is just taken from under the turf, rather sandy than otherwise, and then cover the whole bed with straw or dry litter, as well to defend it from frost in winter, as from the scorching heat of summer's sun. The bed being thus prepared, water it twice or three times a week, without taking off the covering of straw, and in about a month's time the mushrooms will begin to appear. These beds must be made every month to produce mushrooms all the year. The late famous Mr. Harrison, of Henly, made mushroom beds much after the same manner, only instead of horse dung, he made use of old thatch, which turned musty and grew mouldy much sooner than horse dung, and would produce mushrooms quicker, and in greater plenty. Half rotted straw, moistened with lime water, will also produce mushrooms in great abundance. The cuttings of white poplar, steeped in hot water, well fermented with yeast, will produce very good mushrooms in a few days; and the loose chips of the same tree, being buried in a decayed hot bed, will do the like.

To make mushroom catsup.

Break them into an earthen pan, strew salt over, and stir them now and then for three days. Then let them stand for twelve, till there is a thich scum over; strain, and boil with Jamaica and black peppers, mace, ginger, a clove or two, and some mustard seed. When cold bottle it, and tie a bladder over the cork—in three months boil again with new spice, and it will keep two years.

To dry and powder mushrooms.

Lay them on tins or seives in a slow oven till they are dry enough to beat to powder: then put the powder in small bottles, corked, and tied closely, and kept in a dry place. A tea spoonful will give a very fine flavor to soup or gravy, or any sauce. It is to be added before serving, and one boil given after it is put in.

To stew mushrooms.

Sprinkle with salt and pepper—simmer slowly till done; then put a small bit of butter and flour, and a little cream: give them one boil and serve with sippets of bread.

S.

For the Farmers' Register.

VEGETABLE INOCULATION. KNOWN AND PRACTISED 120 YEARS AGO.

The following experiment of Mr. Lawrence, was made 120 years ago, which he mentions in his "Clergyman's Recreation," relating to the jessamine.

"Suppose a plain jessamine tree spreading itself into two or three branches from one common stem near the root. Into any one of these, in August, inoculate a bud taken from the yellow striped jessamine, where it is to abide all winter, and in the summer when the tree begins to make its shoots, you will find here and there some leaves tinged with yellow, even on the other branches not inoculated, till by degrees, in succeeding years, the whole tree, even the very wood of all the tender branches, will be most beautifully striped and dyed with yellow and green intermixed." He adds, that "though the inoculated bud should not shoot out, or that it should live but two or three months, and after that, happens to die or be wounded by accident, yet even in that little time it will have communicated its virtue to the whole sap, and the tree will become entirely striped."

S.

For the Farmers' Register.

SUBSTITUTE FOR COFFEE.

A German physician, by the name of Mark, discovered that acorns may be used with advantage as a substitute for coffee. Considering the high price of this article, it will prove a discovery of much importance.

S.

For the Farmers' Register.

SUBSTITUTE FOR TEA.

The wood of the tender branches of the sassafras, dried in the shade early in the month of May, makes an excellent substitute for foreign tea. The bark has a stronger taste and smell than the wood; and from the quantity of volatile oil it contains, is too stimulating and heating. The tree is cultivated in Jamaica, and the inhabitants commonly employ the root in making tea.

S.

For the Farmers' Register.

QUICKENING GERMINATION.

"M. Humboldt has made several experiments on the subject of the germination of seeds in the oxymuriatic acid diluted with water, and has found that this acid has a remarkable effect in accelerating the progress of vegetation. Cress seed, when thrown into the fluid at the temperature of 88, showed germs in three hours, while none were

seen in water in 26 hours. Professor Pohl, at Dresden, produced, in this manner, vegetation from dried seeds 100 years old; and Messrs. Jacquin and Vander Schott, at Vienna, have caused the growth of old seeds in the botanical garden which had resisted every other method."

S.

From the last London edition of the "Complete Grazier."

ON THE BREEDING, REARING, AND FATTENING OF SHEEP.

[Continued from p. 167 Vol. III.]

On the Merino, or Spanish Sheep.

The sheep of this foreign species have horns of a middle size, of which the ewes are sometimes destitute; faces white; legs of the same color, and rather long; shape not very perfect, having a piece of loose skin depending from the neck; bone fine; pelt fine and clear.*

The wool of the Merino sheep is uncommonly fine, and weighs upon an average, about three pounds and a half per fleece. The best Merino fleeces have a dark brown tinge on their surface, almost amounting to black, which is formed by dust adhering to the greasy, yolky properties of its pile; and there is a surprising contrast between it and the rich, white color within, as well as the rosy hue of the skin, which peculiarly denotes high proof. The Merinos are natives of the northern provinces of Spain, and were first introduced into this country in the year 1787; but it was not until 1792 that any effectual measures were adopted towards improving our native breeds by a Spanish cross. In the last-mentioned year his majesty George III. received several rams of the Negretti breed; but so great was the force of prejudice, that notwithstanding the manufacturers confessed the wool of the Anglo-Spanish cross to be of prime quality, yet not one individual bid for it a price at all equal to what they paid for good Spanish wool. From these sheep imported by his Majesty, and from the great exertions of the late Lord Somerville, (who at an immense expense imported a flock of choice Merinos,) great benefit has been derived to the wool, by crossing this sort with the best British breeds, although the produce of the cross has not been improved in shape. The most successful cross has been with the herfordshire, the fleece of which is heavier, in proportion to the carcass, than that of any other known breed in Europe, the average weight of the fleeces of two-shear ewes being estimated at four pounds and a half avoirdupoise, in an unwashed state; and the fleece of a fat wether of the same age will be from five to seven pounds.

From the high prices which Anglo-Merino wool commanded during the late war, great expectations were formed of the advantages to be obtained from the introduction of Spanish sheep, which were accordingly imported to a great extent, and sold at very high prices†. Of some of the crosses with that breed, we have already seen the result: its effect has also been tried in Sussex, upon the south-down sheep, by Lord Sheffield, and other eminent breeders, and the wool of the flocks was thereby considerably improved; but it was accompanied by some capital defects, not to be compensated by any improvement of the fleece—tender constitution, slow feeding, bad shape and deficiency in the number of lambs. This new breed has therefore been generally given up in Sussex,* and also in Wiltshire, where it had been extensively tried.† There are still, however, many large flocks of pure Merinos, the proprietors of which affirm that their qualites are not only uninjured, but have even been improved by their naturalization in this country. So far as regards the carcass, this may be true; but some of the evidence before the late committee of the House of Lords goes to prove, that the wool has become more harsh; a statement, it may be observed, which is corroborated by the difficulty in selling it, and rendered probable by the difference of climate and of treatment to which the animal has been exposed;‡ though at the same time it is admitted, that the weight of the fleece has been increased, and that the price is double that of south-down.§ The flesh is also fine; but, notwithstanding the improvement of the carcass, the return in mutton is still deficient.¶

In Spain, the sheep from which these flocks have been obtained, are bred in the northern provinces of the kingdom of Leon, and of Segovia and Soria, in Old Castile, and the district of Buitrago, in New Castile; from whence, after being shorn, they are driven southward at the approach of winter, and remain dispersed over the plains of Estremadura, La Mancha, and Andalusia, until the return of summer, when they travel back to their native pastures; and whether from instinct or habit, they are said to display symptoms of restlessness as the time approaches for their change of pasture. They are, in consequence termed *Trashumante* flocks—those which are stationary being called *Estántes;* and there is a code of regulations, sanctioned by the authority of law, for the government of the shepherds during these periodical migrations. The ancient pasturages in the south are secured to them at a fixed rate. A strip of land, of considerable width, is left in pasture at each side of the road for their accommodation, without which they could not travel with conve-

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* Facts and observations on British Wool. 4to 1799. pp. 4, 5. Minutes of evidence before the Lord's Committee on the wool trade, in 1828. pp. 69, 234.

† At the sale of sheep belonging to his Majesty George III. at Kew, in 1809, rams, of the Negretti and Paular race—two of the most esteemed breeds in Spain —sold from 25 to 75 gs. each; and ewes, from 14gs. to 55gs.: all the latter, and many of the former, being full-mouthed. The entire sale averaged, as follows:—

40 rams	1869 gs.	Average	46¾
60 ewes	1958 gs.		32⅔
100	3827 gs.	Total Average	£40 3 7

* Agricultural Survey of Sussex, p. 310, and evidence of Mr. Elman before the committee of the House of Lords, on the wool trade, 1828.

† Evidence of Mr. Cunnington, ditto, p. 193.

‡ Evidence of Mr. Sheppard, Chairman of the London Committee on the wool trade, before the committee of the House of Lords, on the wool trade, 1828.

§ Evidence of Mr. Hubbard, of Leeds, ditto, ditto; and of Mr. Varley, of Leeds, ditto, ditto.

¶ Evidence of Mr. Webb Hall, of Sneed Park, Gloucestershire, ditto, ditto.

nience; and the greatest attention is paid to secure these privileges. By thus removing them at the different seasons from north to south, and back again, they are kept in a nearly equal temperature and it probably is to that advantage that the superiority of the wool of the Trashumante flocks is to be attributed; that from those which remain stationary, being far inferior; as a proof of which, the *Caçeres*, or Estremaduran wool, grown in one of the central provinces, commands little more than half the price of the *Leonesa*. It must, however, be admitted that, in Spain, it is a disputed point whether the travelling flocks are really benefited by the equality of climate thus obtained; some stationary flocks in the province of Segovia being said to produce as fine wool as any of the Trashumante.

If the supposition that the change of pasture be correct, it must follow that these sheep, when exposed to the variable climate of this country, will necessarily change the quality of their fleece; upon which, climate is known to have the greatest influence. It may, indeed, be said, that the change might even then be advantageous; for a certain degree of cold is rather favorable than otherwise to the growth of fine wool; and its improvement in Saxony, into which country the Spanish breeds were introduced about half a century ago, might be adduced as an instance in point. But in Germany, these sheep are regularly housed during the winter; they are also kept, during that season, on dry fodder, which may be supposed to have a material effect on the fleece, for the Spanish sheep are kept on bare, and generally burnt up, pasture, without ever tasting artificial food; and our finest woolled flocks are maintained on the scanty herbage of the downs.

In France—where the royal flock of Rambouillet, picked from the best in Spain, was introduced in 1785*—the sheep suffered greatly by the cold until housed; and although the Merino breed has been since naturalized in that country, and still retains the fineness of the texture of the wool, yet it looses in softness and in strength of staple.

The Trashumante flocks have existed from a very early period in Spain. There is an ancient tradition that the original stock was obtained from this country; but it has not been traced to any authentic source.* In the sixteenth century they were calculated at seven millions; but their numbers have since much diminished, and they are now supposed not to exceed five.

The chief flocks are those of *Paular*, which belong to a richly endowed monastery of that name in Segovia;—of *Negretti*, the property of the Marquess of Campo d'Alange;—of the *Escurial*, formerly belonging to the crown; and those owned by the Duke de l'Infantado, the Marquesses d'Iranda and Péralès, and Count San Rafael; each of which consists of from 40,000 to 60,000, and the average weight of the fleece is estimated at 5lbs.†

The total export of Spain formerly amounted to about 32,000 bags, of 250 lbs. each; but this is daily diminishing, in consequence of the rapid increase of the German fine wools, and of the great depreciation of prices in this country. But little is consumed in the manufactures of Spain, especially since the revolution, which put a stop to the great royal manufactory of Guadalaxara. An attempt was, indeed, recently made to re-establish those magnificent works, through the medium of a public company formed in London; but, like most of such projects, it failed. It is, however, not improbable that the present extremely low prices of wool, in Spain, will induce the Spaniards to manufacture for themselves: if not, the Trashumante flocks will decrease, for the fleece being the sole object of that system, it will be no longer worth pursuing; if the wool should continue, as at present, a mere drug in their markets; and it has, besides, been long considered as prejudicial to the real interests of the kingdom, by its retaining immense tracts of land in the southern provinces in comparatively unprofitable pasture.

*By a treaty made between France and Spain, during the French Revolution, 5000 ewes and 500 rams, of the best Spanish breeds, were placed at the disposal of the French Government.

* See, on this subject, Pennant's British Zoology.

† Bourgoing: *Tableau de l, Espagne Moderne, Vol. I. Ch. III.* This estimate is, however, higher than the usual average.

SYNOPSIS OF THE DIFFERENT BREEDS OF SHEEP IN GREAT BRITAIN.

				Average weight of wool, per fleece.	Average weight of wethers per quarter	Years old when killed.
				lbs.	lbs.	
Heath,	large horns,	black faces and legs,	coarse long wool,	3½	14	4½
Exmoor,	horned,	white faces and legs,	long wool,	4½	15	2½
Norfolk,	large horns,	black faces and legs,	fleece of middling length and quality,	3½	18	3
Wilts,	horned,	white faces and legs,	short and moderate fine wool,	2¾	20	3
Dorset,	small horns,	ditto,	fleece of middling length and quality,	4	18	3½
Dean Forest and Mendip,	ditto,	ditto,	fine short wool,	2	14	4½
Dishley,	polled,	ditto,	long wool,	6	22	2
Lincoln,	ditto,	ditto,	ditto,	11	25	3
Dishley and Lincoln,	ditto,	ditto,	ditto,	6½	23	2
Romney Marsh,	ditto,	ditto,	ditto, good quality,	7	24	2½
Tees Water,	ditto,	ditto,	ditto,	10	26	2½
Dartmoor Natts,	ditto,	ditto,	ditto,	7	22	2½
South Down,	ditto,	gray faces and legs,	fine short wool,	3	18	2
Cannock Heath,	ditto,	gray faced,	ditto,	3	20	3
Ryeland,	ditto,	white faces and legs,	very fine short wool,	2½	14	4½
Shropshire Morf,	polled and horned,	speckled faces and legs,	short fine wool,	2	15	4½
Cheviot,	polled,	white faces and legs,	short wool,	3	16	4½
Improved Cheviot,	ditto,	ditto,	ditto,	3¾	19	3½
Herdwick,	ditto,	ditto,	ditto,	2	10	4½
Shetland,	ditto,	colors various,	fine cottony wool,	1½	8	5
Pure Merino,	horned,	white faces and legs,	short and very superior wool,	3½	16	6
Half Merino,	partake of the various description of the crossed breed,		ditto,	3 to 5	—	—

On the Breeding and Management of Sheep.

Before we proceed to discuss this branch of rural economy, it will be necessary to state the names or terms by which these animals are generally known at different ages; though even these vary in different counties.

From the time of weaning to the first shearing, the males are denominated *hogs*, *hoggets*, or *hoggerels*, after which they receive the appellation of *shearing*, *shearling*, *shearhog*, or *diamond tups*, or rams; after they are called two, three, or four shear, according to the number of times they have been shorn.

When male sheep have been castrated, they are termed, from the period of weaning to that of shearing, *wether* or *wedder hogs*, then *shearings*, *shearlings*, &c.; or they are afterwards denominated *two-tooth*, then *three*, or *four-tooth wethers*, and finally, *full-mouthed*.

The females have the appellations respectively following:—from the time of weaning to the first shearing they are termed *ewe* or *gimmer hogs;* they then take the name of *gimmers* or *theaves*, which continues only for one year, after which they are invariably denominated *two*, *three*, or *four shear ewes;* and, when old, they are termed *crones*.

Sheep, in general, renew their first two teeth from fourteen to sixteen months old, and afterwards every year, about the same time, until they are turned three years old, or rather *three shear*, to speak technically, when they become full-mouthed; for, though they have eight teeth in the under jaw before, it is believed they only cast or renew the six inside ones. But, with regard to this point, there is a difference of opinion among experienced shepherds, some of whom conceive that they cast only six, while others think they renew the whole eight fore-teeth.

With respect to the selection of sheep, as an article of *live stock*, the same principal of symmetry of form, and other requisites to the formation of a good breed of black cattle, which have been already specified, are equally applicable. The breeder, or grazier, should also carefully examine the nature of his land; and having attentively weighed its relative degrees of fertility, and his various sources for supplying food, he may then proceed to purchase that breed, which, after mature consideration, he has reason to believe is best calculated for him. In this point, the introductory view of breeds and varieties, already referred to, will probably afford some guide; but there are some additional hints, to which we would call his attention. In the first place, therefore, he should take care not to suffer himself to be led into needless expense, in purchasing fashionable breeds, by which his affairs might become involved, and his exertions in other objects be rendered nugatory; though he should be scrupulously attentive to procure the best blood of that particular breed on which he may fix. Secondly, the difference of the land, whence the sheep are to be purchased, ought to be attentively weighed; for with sheep, as with cattle stock, if any breed be brought from a rich to an inferior soil, it must necessarily decrease in value and condition. Not only, therefore, must sheep be suited to the pasture, but they should also be purchased, if possible, from poorer land than that of the intended proprietor, for on attention to this last point depends their immediate thriving.

Having thus noticed the general objects in selecting sheep, we now proceed to state some particular points that will demand the breeder's attention; and, as in all cattle the male has the greatest influence, we shall specify those requisites which are essential to a good ram.

"His head should be fine and small; his nostrils wide and expanded; his eyes prominent, and rather bold and daring; ears thin; his collar full from his breast and shoulders, but tapering gradually all the way to where the neck and head join, which should be very fine and graceful, being pefectly free from any coarse leather hanging down; the shoulders broad and full, which must at the same time join so easy to the collar forward, and chine backward, as to leave not the least hollow in either place; the mutton upon his arm, or fore-thigh, must come quite to the knee; his legs upright, with a clean, fine bone, being equally clear from superfluous skin, and coarse hairy wool, from the knee and hough downwards; the breast broad and well forward, which will keep his fore-legs at a proper wideness; his girth, or chest, full and deep, and, instead of a hollow behind the shoulders, that part, by some called the fore-flank, should be quite full, the back and loins broad, flat, and straight, from which the ribs must rise with a fine circular arch; his belly straight; the quarters long and full, with the mutton quite down to the hough, which should neither stand in nor out; his twist (i. e. the junction of the inside of the thighs) deep, wide, and full, which, with the broad breast, will keep his four legs open and upright; the whole body covered with a thin pelt; and that with fine, bright, soft wool."*

Such is the description of the animal recommended by Mr. Culley, who observes, that the nearer any breed of sheep comes up to it, the nearer they approach towards excellence of form; and there is little doubt, but if the same attention and pains were taken to improve any particular kind, which have been bestowed on the Dishley breed, the same beneficial consequence would be obtained. It should, however, be remembered, that symmetry consists in that shape which is best suited to the soil on which the animal is to be bred; and thus that which may be thought perfect in a Leicester sheep may be found inferior in a South Down or a Cheviot.

In addition to the symmetry and other requisites above specified, the *pelt*, or coat, should also be attentively investigated, lest it be *stitchy haired*, in which case the wool will be so materially damaged, in the course of two years, that the injury cannot be remedied for a long period, unless the whole flock be changed. But the fineness of wool is not the only criterion by which it should be judged even in the short wooled breeds: the *staple* is also of the greatest importance; though on that material point—on which the substance and wear of the cloth so much depends—it may, however, be observed that the, now fashionable, Saxon wool is far inferior to the fine Spanish growths of Leonesa and Segovia.

Ewes generally breed at the age of fifteen or eighteen months, though many experienced breeders never admit the ram till they are two years

* Culley on Live Stock, pp. 103, 104.

old. Much, however, depends, in this respect, on the goodness of the food, as well as on the forward or backward state of the breed. The choice of ewes, therefore, ought to be made with care and discrimination, not only as to the characteristic marks, which ought to be the same as those of the ram, but also with regard to the breed; for, with sheep, as with other cattle stock, no certain degree of excellence can be attained, unless the female possesses an equal degree of blood with the male. In particular, a purchaser should see that the animals be sound; and, in order to ascertain this point, it will be advisable to examine whether the teeth are white, the gums red, the breath not fetid, the eyes lively, the wool firm, and the feet cool; qualities these which afford a certain criterion of health or disease.

Of equal importance is the proper selection of rams, even of the same breed and apparent qualifications: in attending to which point, the conduct of the Duke of Bedford (whose memory every real friend to his country must revere) deserves to be imitated by all attentive breeders. Previously to drawing off the ewes for tupping, it was his constant practice to select every ram, together with the lambs begotten by it in the preceding year, from the rest of the flock, and confine them in separate pens, in order that he might examine them and their issue, by the value of which he was guided in his determination.

Ewes bring forth one, two, and sometimes three lambs,* after a gestation of five months, or twenty weeks; hence the sheep farmer, or breeder, may, in general, by considering whether he has sufficient grass to support the ewes and their progeny in the spring, ascertain the most advantageous period for lambing; or in the event of a failure of pasturage, whether he has a stock of turnips adequate to their maintenance till there is a sufficient herbage to supply them with food.

The usual time of yeaning is towards the end of March, or early in April; consequently, the rams are, according to the general practice, admitted in the commencement of October. But in the county of Dorset, where the ewes are, from a peculiarity in their constitution, capable of bringing lambs at a much earlier period;* and also in the southern and south-western districts, where large quantities of house-lamb are raised for the table, it is most profitable to deviate from this plan, and so to admit the ram, that the lambs shall be dropped from four to six weeks, or more, earlier.

The strength and beauty of sheep stock also greatly depend on the number of rams allowed to serve the females. While the former are young, fifty or sixty should be the utmost extent; and, as they advance in years, the number may be gradually increased; without these precautions, the lambs would not only be deficient in number, but also in point of strength.

Various expedients have been resorted to, in order to make the ewes *blossom;* among others, is the practice of worrying them with small dogs, kept for that purpose, in consequence of which they become warmed, so that they seldom refuse the ram. In Leicestershire, a practice was introduced, at Dishley, of employing *teasers;* that is, inferior rams with a cloth so fited on them, as to prevent copulation; and whose duty it is to prepare the ewes for the visits of the sultan of the fold. But it is much better, and certainly a more rational plan, to keep the rams and ewes in different pastures, till the time when they are intended to be brought to the rut; and for about five or six weeks before, let them have somewhat better pasture than they are usually accustomed to, by which expedient they will be disposed to take the ram the sooner. In fact, it is with sheep as with other cattle, the female must be in a certain state desirous of the male before the latter will attempt to serve her; and this object can only be artificially attained by increasing the richness of their food a short time before they are required to couple; for, in proportion to the excellence or poverty of their food, the bodily vigor of these animals must evidently increase or diminish.

During the period of gestation, ewes require great attention, lest any accident should occasion them to slip their lambs; and, if that should take place, it will be proper to separate them instantly from the rest of the flock. Where they are not pastured upon open downs, or moorland, the best plan is to keep them in the same manner as cows, while going with calf, namely, upon a moderate, or tolerably good pasture, where no object can disturb them; and it is also advisable to give them turnips, or similar green food, under the like precautions, till within the last two or three weeks before their yeaning. In the breeding of cattle, indeed, it is a maxim which ought to be steadily kept in mind, that nothing can be more prejudicial to the females than to fatten them during gestation; and with respect to ewes in particular, this rule should be more carefully observed than with regard to any other animal; for if they be fed too high while they are going with lamb, they will undergo great difficulty and pain in yeaning: whereas, unless they are put into a little heat before that period arrives, they will not only be deficient in strength at the critical moment, but also be destitute of a sufficient supply of milk for the support of the lamb, and consequently both the dam and her progeny must be greatly weakened, if

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* The most prolific sort is the *Tees Water* variety of the Lincolnshire breed, of which Mr. Culley has given the following instances. An ewe belonging to a Mr. Eddison, when two years old,

In 1772,	brought him	four lambs,
In 1773,		five lambs,
In 1774,		two lambs,
In 1775,		five lambs,
In 1776,		two lambs,
In 1777,		two lambs;

and of these the first *nine* lambs were yeaned in *eleven* months. But such instances are of very rare occurrence, and deserve notice rather as being curious deviations from the usual course of nature, than as affording any real ground for calculation.

According to Mr. Teissier's experiments on gestation, (already alluded to in the previous books,) out of 912 ewes,

140	lambed between the 146th and 150th day; mean term	148
676	150th and 154th day;	152
96	154th and 161st day;	157

The extreme interval being 15 days to a mean duration of 152.

* It is commonly, but erroneously supposed that the Dorset ewes bring forth lambs twice a year; such instances have occurred, but they are rare.

they do not actually perish from such mismanagement.

As the time of yeaning approaches, the attention and assiduity of the shepherd ought proportionably to increase, as it sometimes becomes necessary to assist nature in cases of difficult parturition; and also, if in the open air, to drive away crows and similar birds of prey, which might otherwise assault the newly dropped lambs, and pick out their eyes, notwithstanding all the efforts of the dam.

As soon, therefore, as the ewes are expected to begin to yean, they ought to be separated from the rest of the flock, and placed in a more sheltered paddock, or in a spacious standing littered fold, on one side of which should be a warm cottage hut, provided with a chimney, and with a stove for warming milk, and also with a bed on which the shepherd may lie down. Here he is to sleep during the lambing season, that he may be ready to watch, assist, and tend any ewes which he observes to be very near lambing, and, if necessary, to give aid to the young animal. Some farmers have such huts on four wheels, to draw about with the flock wherever they may be, and on extensive downs that is an excellent plan; but on farms of a moderate size, it is a far preferable method to have one or two well-sheltered inclosures, to which the flock may be taken without any distant driving; for, although the fold may be useful in very exposed situations and inclement seasons, yet the practice of folding ewes at lambing time is generally objectionable.

It has already been intimated, that turnips are of great service in giving a flush of milk to ewes, unless they have been weakened by difficult parturition, in which case it is considered rather prejudical than otherwise; and, as many drop their lambs at a very early period in the year, great care is necessary in snpplying them with those useful roots, so as to insure a sufficient quantity. If the land be wet and liable to be poached, the best mode is to draw the turnips, and cart them to a dry pasture, where the sheep may be baited with them once or twice in the day; proper attention being bestowed that they eat the whole, without committing any waste; which, if duly observed, will afford a certain criterion of the quantity necessary for each bait, while the stock of roots will be consumed in the most benefical and economical manner. On dry lands, indeed, a different practice may, with advantage, be adopted, by eating the crop on the land, hurdling off a certain quantity for the flock; and, as they consume these, by extending the hurdles further. By this method, no considerable degree of trouble is occasioned; and, it is preferable to that of allowing the sheep to run over the whole field, by which the roots are never eaten off so clean as when the flock is confined to a small quantity at one time.

During very wet or stormy weather, or in deep snows, it will be necessary to bait the ewes on hay. With some farmers it is usual to drive them to hay-stacks, where they meet both with shelter and with food; a measure which is by no means consistent with the economy that ought to exist in every department of farming business, in the manner in which it is commonly practised, but which might be rendered in all respects expedient, by merely fencing the stack round with hurdles, and distributing the hay from it daily. When placed in the centre of a standing fold, a square stack forms an excellent defence for a small flock, against bleak winds, as they have quite sufficient sagacity to seek its leeward side. By others, again, the hay is given in moveable racks, and a stated portion *per day* is allowed. This is an excellent method while on turnips, let the weather be good or bad, for it corrects the watery quality of the food; and sheep thus fed are found to thrive better than upon either hay or turnips alone. In some parts of the kingdom, the most experienced farmers give their ewes and lambs bran and oats, or oil-cake, in troughs, while they are feeding on turnips; but the expense attendant on this practice can only be repaid by a superior breed.

By the course of feeding here detailed, the sheep may be successfully supported till the month of March, about which time the stock of turnips upon the land is generally consumed; so that every attention should be paid to have a proper supply of spring food. Among the many expedients resorted to for this purpose, may be mentioned the turning of sheep into a spot of rye sown for the purpose, or into crops of wheat, in order to feed them off; a practice which, however, is necessarily confined to arable farms, and can seldom be carried to a sufficent extent. Other resources are the letting the animals run over the clover and pasture of the farm; hence the crops of hay, and pastures for large cattle, receive material injury. Others have an adequate spot of land, under ray grass and clover, ready to take the ewes and lambs from turnips, before they are turned in upon the pastures. The last mentioned practice is undoubtedly the best; but it may be materially assisted by removing *Swedish turnips* from the ground and stacking them upon layers of straw, after having cut off the tops and roots: the common turnip will become sticky; but Swedes, treated in this manner, will retain their nutritive quality until towards summer, and will be found essentially serviceable at this trying season. *Turnip, cabbages*, the *ruta baga, green borecole*, and especially *burnet;* all afford singularly useful crops for spring feed. The latter has the peculiar property of maintaining its verdure throughout the winter; so that, even under deep snows, some luxuriance of vegetation may be discovered. In November, it should be four or five inches high; and, by February, the crop will gain two or three inches in growth in the young leaves, when it will be ready for sheep.

Infinitely preferable, however, to any of these useful articles of late spring feed for ewes and lambs, is *rowen*, or the aftergrass, kept on dry meadows and pastures after the hay-harvest is concluded. Although a field of rowen presents an unpromising aspect at a distance, in color not unlike very bad hay, yet when this covering is removed, a fine green herbage, from five to six inches in height, will appear; the whole of which is eaten with avidity by the ewes and their young progeny, who are thus supported till they are turned into the pasture, and being a sure resource, while others may fail, should never be neglected.*

*Mr. Young gives it as his opinion, that rowen is the cheapest mode of keeping a full stock in April. If of a tolerable quality, he estimates that it will carry ten ewes on an acre, *together* with their lambs, through the whole of April; and computes its relative value to be,

With regard to the best time for *weaning* lambs, much depends upon the period, or season, when they were yeaned. When a lamb is to be kept for breed in a good common pasture, it is the practice in some counties to wean it at the end of about four months, in order that it may become strong, and that the ewe may acquire strength and go quickly to blossom. In others, which are more mountainous and poor, the lambs are weaned a month earlier. But whatever influence local customs may have in this respect, this business should be performed before the expiration of July; and, as it is of essential importance to their future growth, and consequently to the breeder's profit, that due provision be previously made, it will be proper to remove the lambs to a distance from the ewes, to such fresh food as may be most convenient. Clover, while in blossom, is the most forcing food; sainfoin rowen may also be successfully employed for the same purpose; but nothing is superior to a sweet bite of fresh pasture-grass. On weaning the young animals, their dams may be milked two or three times, in order to relieve their udders, which would otherwise become painful.

When lambs have been once stinted in their growth, either by disease or insufficient food, they become what is technically termed *sticky;* after which, although they may be in apparent health, it is out of the power of art to fatten them. It is, therefore, of the utmost importance both that the ewes should have abundant food, in order to produce a flow of nutritious milk while they are suckling; and also that the lambs should have plenty of good pasture, or of other succulent green meat when they are weaned.

Various ages are mentioned as being most proper for *gelding* those lambs which are not intended to be raised as rams for breeding; but the sooner this operation is performed, the better it is for the animal, which is more able to support it while young, and running with the dam, and when there is less danger to be apprehended from inflammation. The time best calculated for this purpose, in the opinion of the most experienced farmers and breeders, is within the first fortnight, unless the lambs are unusually weak, in which case it will be advisable to defer castration for two or three weeks, or such longer term as may be expedient, till they acquire sufficient strength.

In grazing farms, in general, it is not only of great importance to dispose, at certain times, of such beasts as either become unprofitable, or are sufficiently fat for sale, but also to separate the stock and place them in different pastures, according to their age and condition. In the southern counties of this island, the severing of sheep usually takes place about six, eight, or ten weeks after the shearing is finished, or in the course of the middle of August. In making this selection great care should be taken to choose those only which give indications of their being of the true breed (whatever that may be;) and, according to their comparative strength or weakness, to regulate their pastures. Hence it will be proper to place those animals which are designed for breeding or fattening by themselves: the ewes by themselves; the *wedder* or *wether hogs*, (i. e. males, whether castrated or not, that are of one year's growth,) and *theaves*, or females, that are two years old, by themselves; and the old wethers and rams by themselves; and lastly, the lambs by themselves; otherwise the stronger animals will injure such as are weak, and prevent them from taking that food which would be most beneficial for them.

When a farm is thus stocked with a proper assortment of sheep, it will be necessary for the owner to inspect them often, particularly in the winter; and, either to remove into better feed, or to dispose of those which do not thrive upon their allotted grounds; but, independently of these examinations, the shepherd ought constantly to continue with his charge, as they are liable to various maladies, which, if not speedily attended to, will carry them off in a very short time.

Before we close the present discussion respecting the management of sheep, it may not be improper to advert to one or two practices materially connected with them. The first is that of *docking*, or cutting their tails; which prevails not only in this country, but likewise in Spain, Saxony, and, generally speaking, in every district where the inhabitants pay much regard to the improvement of wool-bearing animals. The tails are usually cut when the lambs are three or four months old; for, if the operation were deferred beyond that time, it could not be performed with safety to the animal. This practice is objected to by some intelligent breeders in England, on the ground that it renders sheep unable to defend themselves against the attacks of flies during hot seasons: by others, however, it is strongly recommended, because it tends to preserve the health of the animals, by keeping them more clean from the odor which they, in a great measure, deposite on the fleece, and gives the animal a square, handsome appearance on the hind quarter. It is very generally adopted, except by some breeders in exposed situations, who, not unjustly, conceive that the long bushy tail affords considerable protection and warmth to the udder of the ewes in very severe weather.

The other practice above alluded to is, that of *extirpating the horns of sheep;* which has hitherto, we believe, been confined to the sheep-walks of Spain, and to the sheep-farm at Rambouillet, in France. The reasons assigned for it, and the manner in which this operation is performed, are detailed by M. Lasteyrie,* but we deem it unnecessary to insert them, as the practice is not likely to be adopted in this country.

In fine throughout the whole system of sheep husbandry, the greatest attention is necessary, on the part of the *shepherd*, regularly and frequently to inspect the animals committed to his charge. From the nature of his employment, which is usually exercised at a distance from his master's eye, he is under but little control; the property in his care is generally valuable, and always requires the closest attention; the greatest circumspection is therefore necessary in choosing an experienced and trustworthy person for the office; but when such an one is found, his services should not be grudgingly remunerated. In Saxony the shepherds have not fixed wages, but are allowed a pro-

in autumn 10s. or 12s.: in spring from 30s. to 40s. per acre; and, if the season be backward, that a farmer who possesses it would not be induced to dispose of it for a more considerable sum.

* Histoire de l'Introduction des laines fines, &c. p. 236.

fit on the produce of the flock. From the adoption of this arrangement, the sheep-masters derive great advantage, as the shepherds have no inducement to deceive them, and are themselves interested in taking due care of the animals committed to their charge. This practice has also been adopted by some large flock-masters in Scotland with great success: how far it may be feasible in England it would be rash in us to assert; but as the hint seems worthy of attention and trial, we leave it to the consideration of the intelligent reader.

The *Shepherd's Dog* performs so important a part in the management of sheep, that some notice of his qualities cannot be deemed irrelevant to the subject. The species which is delineated in this work occurs chiefly in the extensive sheep-walks in the northern parts of this island, where the purity of its breed appears to be preserved in the greatest perfection. Its docility and sagacity, indeed, surpass those of every other variety of the canine race: obedient to the voice, looks, and gestures of his master, he quickly perceives his commands, and instantly executes them. A well-trained dog of this kind is, to a shepherd, an invaluable acquisition. The faithful animal anxiously watches the flock, keeps them together in the pasture, from one part of which it conducts them to another; and, if the sheep are driven to any distance, he will infallibly confine them within the road, and, at the same time, prevent any strange sheep from mingling with them.

In Prussia, there is a peculiar breed of dogs employed in the management of sheep: it is described by M. Lasteyrie as being of a small size, but stout and thick, with erect ears, and bearing some resemblance to our wolf-dogs: their coats are partly smooth and lose, while others are long and shaggy. They are remarkably docile; *never bite the sheep;* and at their masters' voice, repair instantly to that part of the flock which is pointed out: in case the sheep hang behind, *these dogs push them forward with their muzzles;* which is sufficient to make the sheep take the requisite direction. An importation of a few of this breed would certainly be worth the trial: or if the Prussian mode of teaching our dogs not to bite, could be acquired, it would be a most desirable object. The contniual state of fear in which those naturally timid animals are kept by a dog that has not been properly trained, disturbs their repose, and prevents them from feeding quietly; and, in fact, it rarely happens in any flock, that there are not some sheep which are from time to time lacerated, more or less severely, by the bite of dogs.

From the Genesee Farmer.

ROTATION OF CROPS.

I have ever considered the notion which has been advanced in some of the English agricultural journals, that the matter thrown off in the soil by a species of plants is poisonous to other plants of the same kind, if grown in succession, as most unphilosophical, and contrary to fact. Some of the advocates of a doctrine of an absolute necessity in all cases for a rotation of crops, found in this supposition of excrementitious poison, a very convenient argument for their system, and hence it has obtained some currency both at home and in this country. Farmers, however, of all men, should be the last to be wedded to theory, as theirs is a profession eminently practical. It is too late in the day to "doubt" that the system of rotation in crops, under proper circumstances, is of the first importance in agriculture. Its effect, however, does not depend on the extinction of excrementitious poison, but by a renewal of the proper food of plants. That the influence of rotation has been overrated by some English and American theorists will not be disputed, and when the time comes to underrate, of which some symptoms can be discerned already, it is at least probable it will be as injudiciously decried. That corn will grow in succession for half a century on the Genesee flats—wheat for thirty years on some of the favored wheat lands of West New York—and oats for twenty years on some of the slaty soils of Cattaraugus, without much diminution of quantity, I can readily believe; but exceptions like these to the system of rotation only demonstrate the propriety of the course in general. To us it appears the doctrine of rotation is founded on very simple principles, capable of easy and successful application, and hardly leaving room for doubt or disputation. That plants during their growth do take up, and appropriate as nourishment, very different materials from the same soil, will not be questioned by any one who has paid the least attention to vegetable physiology. For instance, does the pine apple or the orange take as much silex from the earth as the bamboo or the rattan, some of the species of which have an outer covering so hard as to strike fire when struck together?—or, to select a more familiar example, does the linden contain as much of the salt called potash as the elm or beech?—and how does it happen that while 1000 pounds of wormwood yields 784 lbs. of saline matter, the box and the aspen produce but 70? This faculty of taking up particular substances as food, and the necessity of the supply, holds good in the cereal grasses, such as wheat, rye, barley; in corn and oats; in roots, such as potatoes, carrots, turnips, beets, &c. They all find and assimilate as nourishment different ingredients from the same soil, or appropriate them in very different proportions. If the soil of my farm abounds in those aliments essential to the production of wheat, I can raise crop after crop from the same land, and rotation is needless; and this course of successive crops will be successful in exact ratio to the continued supply of proper food. If, however, the proper food of the wheat plant is limited, a rotation of crops, and manuring, by which this quality can be restored, is indispensible. It is so with corn, oats, and most other plants. The rich alluvion of the Genesee flats is apparently inexhaustible by corn; perhaps 90 parts in 100 are suited to the growth of that important article; but this fact does not prove that other and less favored soils cannot be exhausted, or will not be benefited by a rotation. I have seen some of the oat lands spoken of by Mr. Allen in a former number of the Farmer, and feel a pleasure in bearing testimony to the general correctness of his views, and justness of his remarks; yet the facts he has stated furnish perhaps one of the strongest arguments in proof that different plants take up different materials from the same soil, and therefore that rotation must, in most cases, be advantageous. Those lands in the southern tier of counties of which Mr. Allen has

spoken, as producing such abundant crops of grass and oats, are, it is well known, worthless for wheat, the flour of the little they do produce being of a very inferior quality, and no more resembling that of the counties bordering on the lakes, than does the rye flour of the eastern states. I should put but little confidence in the theoretical notions of any man, who could imagine that the farming of a whole country can be made to conform to a single system, or pattern. There is an almost infinite variety in the original ingredients of our soils and their proportions, and the mode of treatment, to be judicious, should be as near as possible made to conform to these variations. There are some general principles every where applicable, and there are others which have but few exceptions; of the latter class I consider to be the doctrine of the utility of rotation in crops. My friends, the practical as well as theoretical Ulmus, or the "doubting" R. M. W., may be so fortunate as to possess farms which will admit of an unbroken succession of wheat crops, but I imagine the farmers of Old Onondaga will in general agree with me, that the simple rotation of wheat and clover has more enhanced the productiveness of their farms, and consequently rendered them more profitable and valuable, than would successive but necessarily diminished crops of that valuable grain, and important staple of our country.

W. G.

From the Farmer and Gardener.

RIBBON GRASS.

I wish to make a few remarks on some experiments that I am making, though now in their infancy, on a species of grass here named and known as the ribbon grass. This early disclosure of results, as far as they have gone, is rendered the more necessary, inasmuch as I have recently seen an extract from a letter of mine in an agricultural paper which though not intended for the public eye, found its way to the press. To this course I have not the slightest objection; but on the contrary, will feel especially happy at all times, if what I may say should be of service to my countrymen, of letting whatever I may write be published. The circumstance to which I allude was this. I mentioned in a letter to a friend, that I had seen a patch of ribbon grass, in a very flourishing state on a wet, boggy spot of ground, and of my full belief of its being susceptible of being very extensively and profitably cultivated, and of my intention of trying the experiment. As this has been communicated to the public, and as I have had a very favorable account of it from a gentleman in Connecticut, an experienced and practical farmer, and of his determination of entering into its culture immediately, I deem it proper that I should make known my own experiments and opinion of this grass, believing as I do that it will prove a most valuable acquisition to the cultivated grasses, and a great blessing to the people of the south in particular.

A neighbor of mine, (Capt. John Simpson, living in Greenland,) knowing I had made some experiments on grasses, observed to me that he had a patch of ribbon grass on a springy, boggy piece of ground, which it was worth my while to see. It was his belief, from its luxuriant growth in the *bog*, and the circumstance of its expelling all other grasses, taking full possession of the soil, and affording two full crops in the season, and from the fact *that all kinds of stock were very fond of it, that it might be cultivated to great advantage.* This excited my curiosity, and I soon called on the gentleman to satisfy it, and was surprised at the beauty and richness of the grass. It grew on a bog at a small distance from a living spring, where the water descended and spread through the grass all the season. The appearance of the neighboring grass in the same situation, was very ordinary, being thin, flat-leafed, short, and nearly worthless—whereas the ribbon grass, in every particular, wore the most beautiful appearance of any grass I had ever beheld. It was then in its vigor, and in full bloom, every leaf being expanded, wide and thick, so that the eye could not penetrate through it. Each leaf has one or more stripes lengthwise, differing, on close scrutiny, from each other, either in the number of stripes, or their form or shade. This grass averaged about four feet in height, and stood perfectly erect. It is possessed of a fine solid stock, having an inviting and luscious appearance as fodder. I took a clean lock of it, and another of herds grass, and offered them both together to my horse, and found him quite as fond of the ribbon as of the herds grass.* Capt. Simpson states that he has observed that his stock were more fond of it than of his best hay of other kinds. This patch would amount to about one square rod.

I engaged the seed, not knowing what it produced, having never particularly observed the grass before; I accordingly applied at the proper time as was supposed, and reaped the heads, but was able to discover but very few seeds, from one to three to the head. Being certain that we were full early, a part was suffered to remain till later in the season—when by a re-examination it was found in the same condition. I beat and rubbed out the chaff; but could discover only a few small seeds. I sowed it in good season, with the greatest care, in my garden, hoping that in the chaff, there was more than what I could discover, which would vegetate. I sowed it in drills, to be sure to have it well covered, and that I should not mistake other grasses for it. There appeared to come up a few white blades, which I supposed to be young ribbon grass; these few, however, dwindled off one by one, till all disappeared, the ground never having been disturbed since, and I have not one plant to show from these seeds. Hence I conclude it *cannot be propagated from the seed.*

Having a very favorable opinion of the grass, I looked for some way to propagate it, and concluding that it might be multiplied from the *root*, as hops and many vegetables are, I accordingly engaged one-half of the patch, to take it in the spring. I prepared my ground (40 rods) by ploughing in my low ground in the fall, the ground varying from soft to very soft mud. The spring being wet, the ground uncommonly soft and muddy, I postponed the setting of it out, I think, till June, when I went for my wagon load of turf, the grass

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* Mr. Robinson means timothy, that being the name by which it is designated to the eastward.—Ed. Far. and Gard.

was then from four to eight inches long. Early in the spring it had had a dead appearance, but at this time it had become pretty well sprung up; some old stubs were dead. Perhaps this situation was one of the most trying of any to be found. It grew where ice made to a great thickness from the water spraying from the spring all the year. Mr. Simpson has informed me since I took away one-half of his turf of the ribbon grass, that it sprung immediately up in the same place, and produced a crop quite as good as before. Since his closer observations, he says he esteems the grass more highly than at first.

The manner in which this grass was planted in the bog, was this. He had a tuft of it growing for ornament in his garden, in a very rich soil; which he occasionally ploughed, and finding the ribbon grass spread a little too far, he ploughed off some of the roots, gathered them and threw them into the bog; he found they took root, spread and flourished as I have stated. I observed when getting my grass, there were some low spots covered with water, where the grass sprung up stronger and larger, being apparently more in its element.—Capt. Simpson's garden is of the richest soil among us; yet it is evident that one rod of the bog will produce as much as four in his garden. Immediately after getting home with my turf, I commenced chopping it up, taking care to divide the tufts according to the stalks, leaving from one to three in each piece, choppig them with a sharp spade, into pieces, from one to four inches square, setting out about 40 square rods, about two feet apart, without any manure; and setting a few for experiments in the middle furrow where the water was constantly issuing nearly all the season. None of them failed of living, and all have taken root, shot out and spread considerably; some few to meet each other. Those in a dead furrow appear every way as thrifty as those on the bed. I had the curiosity to try the experiment by sticking one stock of this grass without root in the mud, where the water continued to issue: it appeared to grow as well as those with the root; and shot out with branches. This method of propagation is more facile than from the root. I pressed several tufts into holes in a bog where the water would rise to the top of the tufs, (this is among fresh grass,) here it shot out and appears in its element, and will in all probability spread and drive away all the other grasses. I also sunk some into what is called a quagmire, where it is so soft as not to bear a cat; here I sunk the tufs level with the water; these have the appearance of being perfectly in their element. All these I have lately surveyed since our severe cold, and those in the wettest places appear least effected. I set some of them out on some of the most barren soil, under a forest of white oaks, where nothing of consequence will grow: they all live there, and will probably produce something, perhaps one ton to the acre; if it will do this on very barren lands, it may be well to cover them over with it. I have set it in my front yard and in my garden, on warm soil of tolerable quality, bordering on common grass, in part for ornament. A portion of this was manured and hoed; here it is perceivable that the higher the culture the greater the product as it respects high ground. It is demonstrated from my experiments, and Capt. Simpson's discovery, that this grass is truly amphibious. It will do well on high dry lands, and it will thrive in a bog or even in water. I do not know how deep a water it will grow in, but I presume it will grow in shoal, especially running water. Is it not evident that this grass possesses very valuable properties, and must prove superior to most other grasses?—Yes, for it not only grows luxuriantly and in abundance in a quagmire where nothing of any value has ever been known to be produced before, but its roots are of such a tough nature, that a sward is soon produced that will bear a cart and oxen to pass over it. It has another good quality:—although the circumstance of this grass not producing seed for propagation, seems at first view to lessen its value —yet when we consider the evils resulting from many troublesome grasses that spread from seed, and that no limits can beset them; we may, with propriety, esteem it a virtue in this fast-rooted grass, that limits, can be set to it, that our valuable tillage ground may never be impeded with its roots, and that our waste and unproductive bogs may be easily changed to the most productive portions of our farms. As to what *Ribbon Grass* will do in pasture, I know nothing. I have my doubts whether it will succeed, as I think it is not thick and downy enough, to bear repeated trampling and cropping close to the ground. It is possible, however, from its hardiness, wherever it has been known by me, that it may endure the hardship of being pastured; if so, I have a right to conclude from all its other properties, that it will prove far more valuable than any species of grass yet introduced into culture (the gama not being fully known,) and if any farmers at the North or South, have waste bogs that are eye-sores within their enclosures, let them try the experiment of the culture of this grass; it will not be costly, even if they should not succeed.

ABEDNEGO ROBINSON,

Of Portsmouth, N. H.

From N. Y. Jour. of Com.

MOWING MACHINE.

We have seen at the shop of Mr. Johnson, in Cherry Street, a mowing machine, which we are told is the first of the kind built in this country. The cutting operation is performed by circular knives fastened upon the periphery of a horizontal wheel five feet in diameter. This wheel is suspended upon a perpendicular iron shaft, which hangs upon a lever, by which the knives are raised or lowered at the pleasure of the driver to suit any unevenness in the ground. The motion is given by geering, connected with the wheels, on which the whole machine rests. The machine will weigh a ton, and is moved by two horses. Upon the horizontal wheel, and just within the edge of the knives a tub of light wood, which has the effect of carrying the mown grass into a swath. We see not but that the thing will work well on smooth land, but where there are rocks of much unevenness it cannot. It is said to be capable of mowing ten acres a day, and certainly, for the mower, it is much easier to ride on this machine, than to swing a common scythe. The machine was invented in England, but the laborers there, probably under the guide of some philanthropic leader, made war upon it, and would never permit it to be used in peace.

IMPROVEMENTS BY MARLING IN NORTH CAROLINA.

To the Editor of the Farmers' Register.

Newbern, June 22, 1835.

DEAR SIR—I have lately received from Mr. Benners the enclosed letter, and supposing it to possess some interest for you, I have accordingly forwarded it. I should be pleased to send you some of Mr. Benners' specimens, if an opportunity of forwarding them should be found. Mr. B's position, you may remember, is on the northern bank of the Neuse River, about 16 miles below Newbern. He is the only person in this section of country who has any considerable experience in marling. A few other persons however have begun to make experiments.

Yours respectfully,

H. B. CROOM.

P. S. The marl pits of Mr. Benners are remarkably interesting for the variety of shells and fossil bones which they afford. These have proved, in the estimation of Mr. Conrad, the existence here of the *newer pliocene* formation.—See *Silliman's Journal* for April, 1835.

To H. B. CROOM, ESQ.

Roseville, June 14, 1835.

Dear Sir—In reading the Essay on Calcareous Manures, I learn for the first time, that our shell marl is *not* what is properly understood by marl in English books and practice. The solution of the two kinds is widely different. The test of marl is pure water—and acids the test *we* use for the same purpose. Observing this fact, I immediately recognised an old acquaintance overlooked and neglected by me, as I only *knew* him by the name of *clay*, but since his introduction to my notice under his *proper name*, I have made it my business to become more intimate with his character and *calling*, and find upon investigation, that marl is his *real name*. Brick mortar has certainly done him great injustice, both here and in England, in assuming the garb, quality, and character of marl—to the great loss and detriment of society in general, and farmers in particular. At the same time begging pardon for our past neglect of him, and promising every attention to him in future, we remain his humble servant. About ten years past, I did offer this marl a glass of vinegar, but having refused it, I cut and broke off all farther acquaintance, until latterly, I have fortunately discovered he is a pure water drinker. It is also remarked, that he is none the worse for his temperate habits. Nos. 1 and 2 are samples of this marl. I am now enabled to give you an account of the position and order of the different kinds of marl as they come to view in working the pits.

The first bed is a fat blue or red clay marl. Nos. 1 and 2, from two to five feet below the surface, and from three to seventeen feet thick.

The second bed under this, rich red or yellow shell marl, from one to five or six feet thick—effervesces in acids.

The third bed is a very *deep blue* marl, without shells, with here and there the impression of the whole exterior surface of the shell, forming a cell in which is a lump of marl the size and shape of the *fish*. This kind is very tough to cut up, but when dry, crumbles to a very fine powder, as light as ashes, and about the same color—effervesces in acids. Specimens No. 3.

The fourth bed is (either) a blue or white shell marl, and works like coarse mortar, hardens in lumps as it dries, but crumbles in moving about—effervesces in acids. This last or lower bed is from three to five feet below common tide-water, and has never been worked through. I have selected from the different beds of shell marl, a variety of specimens which I intend sending to you very shortly, and some fossil bones, &c. I am at present working a pit which exhibits the different strata, in the order in which I have attempted to describe them above, but very imperfectly.

It is very easy to be deceived in the strength of marl by merely handling it, or by the eye, as I have experienced the injurious effects of a too liberal application of it on an impoverished soil. Fifteen years ago, I *burned up* a piece of an old field by laying on too great a quantity of shell marl at the first dressing: but it is now excellent land. As this was my first experiment, (1818) I was mortified and disappointed, and was of course laughed at and ridiculed, because the experiment had fulfilled the prediction of those who merely guessed at what they knew nothing about. I soon discovered my mistake by observing that where the heaps were left unspread, and ploughed through and planted, that the young corn died, and that no grass would grow on the pure marl—but this was not the case in the intervals between the heaps; these spaces showed evident improvement, but so very gradual, as to be unobserved by every one but myself, and the hands employed on the farm. I soon perceived that my land was getting better. My means were extremely limited, and of course my land improved in proportion, and continues so to do up to the present moment. I very soon discovered that manure went a great deal farther on my marled land, than on land of a better quality not marled. The improvement, however, became at length too evident to all to be any longer doubted; but the *jest* continued, and the whole improvement placed to the credit of the manure, of which I have never raised as much as would afford a tolerable dressing to half of my corn crop, without the marl, and both combined with enclosing and alternate cropping; corn, cotton, potatoes, and wheat or rye: * the land divided in two equal parts, and one-half tended as above described, while the other half remains enclosed. This is the course I have pursued steadily for the last fifteen years, and have no disposition to change it for a better, unless our climate was more congenial to the cultivation of artificial grasses. White clover grows in my fields, but receives no assistance from cultivation—it dies in July and August, while the crop grass and carrot weed cover the land, and are invaluable, being capable of resisting the dryest and hottest weather.

*Rye should succeed corn and potatoes on all our light lands, instead of wheat. It is a most profitable grain for stock, and the quality and texture of our high lands are admirably adapted to the production of this grain, as a very profitable crop. My attempts at a good crop of rye have never failed—wheat on the other hand is just as uncertain.—L. B.

Whether land is sour or sweet, I am not chemist enough to determine: but I *do know* that the red sorrel will *not* grow on marled lands, as I have had a very fair opportunity of being abundantly satisfied. The whole of my land was covered formerly *knee deep* with a most luxuriant growth of this beautiful plant. At this time there is none to be seen, nor for the last eight or ten years.

With great respect,
I remain, dear sir,
Your obedient servant,
L. BENNERS.

[We learn from the foregoing letter what we had no idea of before, that Mr. Benners' experience of the use of marl commenced as long ago as 1818—the same year of our own first effort to profit by this mode of improvement. That the benefit of marling should have been so long exhibited, in a region eminently fitted to reap its richest rewards, without inducing others to follow the example, and *scarcely* to believe in the results, are facts both strange and lamentable. Nothing can place in a stronger point of view, the former and existing want of intercourse and exchange of opinions among farmers, and of the vast importance of agricultural periodical publications, as a means of remedy.

Mr. Benners seems to have placed an erroneous construction on a part of the work which he refers to, and which it would be improper here to pass without notice. In stating and proving at length that English farmers and writers have very often called *marl* what was merely *clay*, but slightly if at all calcareous, the author did not mean to contend for the correctness of the application of the term—but directly the reverse: and he would neither attach the name of marl, or consider of much value as manure, any *clay* which was not calcareous.]

LOW PRICED AGRICULTURAL PUBLICATIONS. EXTENSION OF THE PLAN OF THE FARMERS' REGISTER.

Low priced newspapers, and other periodical publications, are now so common, and so little regard is paid by the majority of readers to the considerations which ought to recommend more costly works, that some concession must be made to the prevailing opinions, in this respect, to be enabled to spread any publication very widely. Especially does this apply to agricultural publications among the middle class of farmers, by far the most numerous and important class, both as farmers and as citizens, and therefore the most desirable to attract and retain as readers and subscribers. Unless the main ingredient of a publication consists of party politics—the exciting and maddening intellectual food of thousands to whom every other kind is insipid, or repulsive—scarcely any periodical at $5 a year can now obtain very general circulation in the southern and western states.

It is unnecessary to state here, the various causes of expense which serve to add to the price of a periodical published in the manner, and form of the Farmers' Register—or to show, as might easily be done, that for its cost to the publisher, its style of execution, and for the amount and value of its contents, that it is truly a cheap work. This is so well understood by the greater number of those who are its present supporters, that they would not choose to have its form changed, and to yield the peculiar advantages of its present plan, for any consequent abatement of price. Neither is it our wish or intention, to lessen the value or the beauty and convenient form of the present publication—but on the contrary, to continue (as has been commenced already) to give increased cost and value to the material, and mechanical execution, and to as great extent as the object requires, and the means may authorise. But while carefully guarding against impairing the value, or lowering the grade of the Farmers' Register, as now published, it is highly desirable to suit the wishes, and gain the support, of the very many farmers of Virginia, and adjoining states, who have not yet learned the value of agricultural periodicals, and who will not profit by them, except when conforming to their general and commendable (though in this respect mistaken) views of economy. However extensively and liberally this journal has been supported, it must be confessed that it has comparatively made but little progress among the middle class of proprietors. It is true, that some farmers whose poverty forbids their indulging in any useless expense, and who labor daily and assiduously for their maintenance, are among our subscribers—and we are proud to have their support, because the amount of expense to them, is equivalent to a very high estimate of the value of the work. But for every one such, whom we can boast of as a subscriber, there are perhaps fifty who are rich, or at least in the possession of competent fortunes, who have withheld their aid, and that on account of the expense of the subscription. Without stopping to oppose the soundness of this objection, it will be admitted that it exists, and operates extensively—and every friend of this journal, and to the cause which it is designed to support, will admit the high importance of removing this obstacle to its circulation, and of gaining access, if possible, to a far more extensive body of readers.

With this view, a low priced publication is proposed, consisting of a single sheet, to issue four times a month, and to contain nearly the same matter as the monthly publication. But getting rid of the cost of the difference in the value of paper and of execution, and of the entire cost of various other matters peculiar to book work, and to the mode of delivery of our present publication, the work in the cheaper form may be furnished at little more than half the present price, and yet yield as much profit upon the same amount of annual receipts. Or in other words, 3000 subscribers at the rate of $2.50 would yield nearly as much profit, as 1500 at $5. The vast difference of benefit to the general interests of agriculture, which will be caused by the greater number of subscribers, is a sufficient inducement for us to risk the possible contingency of loss from a smaller accession of names, and of course a proportional diminution, in future, of the present amount of receipts. A specimen sheet and proposals

will be issued, and the publication commenced as soon as there appears sufficient indications that a publication on this plan will be approved and sustained by the agricultural community: and if it is well sustained, there shall be nothing spared or omitted to make the diffusion of agricultural knowledge through the southern states both as extensive and *as cheap* as possible.

CROPS IN BEDFORD. AGRICULTURAL PAPERS.

To the Editor of the Farmers' Register.

Lynchburg, June 19th, 1835.

* * * * I have just returned from the country, (my farm in Bedford, 22 miles above this) where I find a small portion of the wheat crop tolerable good, but the mass very inferior—and a large part of that on the corn ground not worth cutting, even if it escapes the rust. This failure is ascribed in some degree to the unfavorable winter, but mainly to the ravages of the Hessian fly. Many of our planters have wholly, or partially discontinued the culture of tobacco; and by attention to manure, clover, and plaster, and better ploughing, have improved their lands to a considerable extent: but the prospects of the wheat crop, connected with the present price of tobacco, will, I apprehend, produce much backsliding, and many of us be found again to have "returned to wallowing in the mire;" so that this seeming good —the high price of tobacco—may be to us a real evil. The rye, oats, and corn crops appear rather promising, and the frequent rains of late, have enabled the planters to pitch their crops of tobacco without difficulty.

In a late number of the Register, you remark that your subscription is confined chiefly to the low lands. Your locality, your level and sandy lands, your marl beds, your easy access to lime, and other circumstances, produce a greater difference between our situation and yours, than with the same elevation would exist in several degrees of latitude. From these circumstances, I had no idea of taking the Register until I read your Essay on Calcareous Manures; and I have no doubt many are deterred from even looking into it from the same causes. The price too being higher than many other publications, may have some effect. Sixty odd numbers of the Cultivator, and several of the American Farmer, and Genesee Farmer, are received at this post office. I state this, not by way of complaining, but in explanation: for it is my opinion, that every sensible farmer, whatever may be his latitude or longitude, elevation or depression, may read your Register and your Essay with manifest advantage. With my best wishes for the continued success of your useful endeavors, I am, &c.

MICAJAH DAVIS, JR.

[The foregoing letter (post marked June 24,) was not received until after the last No. was printed, or it would have appeared earlier.

It is gratifying to learn that however small may be the patronage of the Farmers' Register in Campbell, other agricultural papers are more welcome there. The subscribers who receive the Farmers' Register at Lynchburg are only twelve—and there have never been more, nor so many until recently. If the price of this journal is the *only* bar to its receiving more favor in the upper country, a proposal has been made for its removal, by a similar publication of low price. But if there are objections to the general character of the work, or to the manner in which it is conducted, they will still remain in full force. Let farmers generally be but impressed with the importance of reading and sustaining agricultural periodicals, and we are content that their support shall be given to the most deserving, even if our work should be surpassed by many others in merit, or in other claims to public favor and support. If the great object is effected, it is of but little importance (and none whatever to the public,) by what means, or by whose agency, the end is reached, and the benefit produced.]

CORRECTION—"VIN MUET," OR DUMB WINE.

To the Editor of the Farmers' Register.

Columbia, S. C. June 10, 1835.

I have read with pleasure your article on "the making of wine in the canton of Marcillac." I take the liberty of observing to you that one word "mutage," [p. 23, Vol. III.] seems not to have been understood by your translator, and there is nothing surprising in this; for the technical expressions of particular arts are not easily understood, and they are not found in dictionaries. It is to be hoped that the new dictionary that is announced as coming forth, after many years' labor by the French Academy, will contain this and all such terms, without which it will not be complete. The verb "muter," signifies "to render mute," or dumb, which is done to wine by sulphuring it. *Mutage*, therefore means sulphuring. There is in some places a wine made that is called "Vin Muet," literally "dumb wine." It is wine that has been fumigated to excess with sulphur, before fermentation has taken place, which chemical process is thereby prevented, and the wine remains sweet. It is called "mute" because the bubblings of the fermentation are not heard, and it actually makes no noise. This word then is not near as bad as most others which no etymology can clear up.

N. HERBEMONT.

[We thank our correspondent for this correction. He who is best qualified to offer such, will be most indulgent to the mistakes of this kind which require correction. The number of provincial expressions which are found in all agricultural writings, render translations from one language to another very difficult: and this difficulty may well be conceived by all readers who have noticed how many of the provincialisms in our own language are unintelligible. Neither the verb "muter', nor its derivative "*mutage*" can be found in either of five French dictionaries in our possession—among which is the old voluminous *Dictionaire de l'Académie, &c.* a modern abridgement of the same, which professes to give terms of science and art, and Rozier's *Cours Complet, &c.* one entire volume of which is occupied with definitions of technical and provincial terms.]

For the Farmers' Register.

THE SOILS AND AGRICULTURAL ADVANTAGES OF FLORIDA.—No. 2.

Plantation Wascissa, Florida, July 2, 1835.

The most prominent characteristics of the lands immediately bordering on the Atlantic in East Florida, were succinctly delineated in my last letter: and conformable to my self-assigned order of correspondence, I continue my observations on the remaining and extensive inland portion of the "eastern district."

The character, features, and growth of the land are singularly and abruptly changed, as we proceed westward from the ocean: the country becomes generally more interesting in landscape, and more diversified in soil and native production. The monotonous levels and eye-fatiguing flats of the low Atlantic marshes, are no longer, with their rank grassy plumage, and thirsty palmettoes, to be seen: dense and towering forests of every foliage, luxuriant over a rolling and picturesque country most verdant with herbage, and spotted like the variegated leopard, with abrupt and strange marks of richness and sterility, strike the observant traveller with surprise, not unmixed with the illusion of enchantment.

The river Saint John's, than which there can be no nobler stream, seems by nature intended as the marked and eternal division of this varying and diversified country. It rises amid the swamps of the Everglades in the far south, and with comparatively little deviation from a north course, it streams itself along for an hundred miles and upwards, receiving numerous tributaries, and rapidly becoming a wide, magnificent river. When reaching the site of the town of Jacksonville, some twenty miles from the sea, it gracefully rounds and empties its widened breadth almost due east, into the ocean. This river is singularly characterized, in addition to its unrivalled forest banks, by extensive eye reaches, and prospective scenes, in being the only river of magnitude in the southern states of America that, from its source to the parallel of its mouth, runs *northerly:* and still more is it notable, that with this course, it should run for nearly one hundred and twenty miles of its length directly *parallel* to the Atlantic, and only divided for that whole distance, from the oceanic waters, by a narrow strip of land some thirty miles in average breadth. It is indeed a great natural canal, singular in its position, and unsurpassed in magnitude; and one sighs in witnessing the unprofitable waste, and sluggish idleness of its magnificent waters. The curiosities of the Saint John's are likewise peculiar, and well worthy of sight. I would name the *Silver Spring*, so dazzling with its transparency and spangled carpet, and so enormous in its dimensions and vehemence: as also the *Golden Spring*, equally curious, though smaller, in its jewelled bowl, and pellucid waters: but above all is most remarkable the phenomena of sound to be here awakened: no where can

"Gamboling echo hold more boisterous court—"

than o'er the still expanse of this enchanting stream. The report of my rifle was reverberated with astounding loudness, and stammering reiteration, alternately from bank to bank (here five miles distant) in thirteen distinct successions, gradually diminishing in power, till

"Distance smothered softly the sound."

Crossing this fascinating river, as the line of our descriptive sketches, we leave in the east the Atlantic, with the lands delineated in my first letter, and we find on the west the forest of Alachua, now to be described.

The county of Alachua extending nearly from the western bank of the St. John's, to the gulf of Mexico, and between latitude 29 degrees and 31 degrees, as its average northern and southern boundaries embraces an immense body of rich and, diversified lands, constituting it one of the largest and most valuable counties of the territory. It is as yet but thinly populated: the presence of the Seminole Indians, heretofore in sole and native possession of its wide extending hunting grounds, has prevented the settlement of white men. These ill-fated sons of the forest will however "*relinquish*" their original rights this winter, and remove to the "far west," there to await the sure advance of demoralizing civilization, and as surely, their *second* pilgrimage! Speculation and avarice have, notwithstanding the "red men," ere this found a limited "local habitation" within these Indian reserves,and from the exciting reports, the tide of emigration is now setting rapidly thither.

A great diversity of soil, as visibly marked by an infinite variety of growths, necessarily is to be found throughout so extensive a county. The most valuable is the dark chocolate soil, generally on tabular sites, but oftentimes over the rolling lands, indicated by a dense growth of sweet-gums, dogwood, and tulip tree, with an impenetrable undergrowth of gigantic grape vines, thickets of wild orange, and plum. This soil I have never had an opportunity of examining accurately. To the eye, touch and taste, it seems composed of a strong rank vegetable decomposition, coating the surface in black humid fibrous matter, and combined with a large portion of aluminous earth, containing lime or other salt in visible quantity, though not in a carbonate combination. These lands when first brought in tillage yield but indifferently well, being, in the language of the district farmers, "too luxuriant and fat, and produce only weed." Cotton, corn, and sugar, however, after two or three years' culture, produce amazingly, and continue their large returns as far as experience has yet gone. I have said that "lime is present, though not as a carbonate," in these soils. I may extend my remark, and doubt whether calcareous earth as carbonate of lime is to be found in any of our inland districts: they have undoubtedly lime in abundance, and in some places are based on rotten limestone; yet I am inclined to think we have the combination of the sulphate, instead of the carbonate—and most probably more of magnesia, than of lime. I hope however ere long to analyse these interesting formations, and place my knowledge beyond an hypothesis. My present conviction is partly formed, by the taste of the earth, and partly from the great luxuriance near these rich mulatto soils of towering pine trees! But to return. These rich soils are beyond doubt inexhaustible; and large tracts are now vacant, awaiting the test of culture. Some portions are lighter in color, showing the preponderance either of silicious or magnesian earth: but all are proverbial for fertility and strength. The attention of the scattered settlers has heretofore been devo-

ted to grazing: and their extensive herds, well rounded in limbs, and accompanied with numerous young, afford substantial evidence of the profit of such occupation. Some few plantations have been opened, and are now successfully under cultivation of the sugar cane, sea island cotton, and farinaceous grain. Their crops have been variable in production: though their failures may justly be attributed to the deficiencies of the requisite machinery and dilatoriness in harvesting, rather than to any fixed discovered error of soil. Procrastination has been here, as well as in other parts of Florida, the thief of wealth. Col. Clinch of the army, is I believe, the proprietor of the largest settled estate in Alachua. His plantation has been in operation for several years, and though it has had, like others, its good and bad crops, it may be stated, (in evidence of what the soil and climate can produce,) that last year, notwithstanding the unexampled severity of the winter, he realized from his crop, unassisted by artificial manuring, and at best roughly cultivated, with only about fifty negroes, the sum of (as understood,) $20,000! having made (as heard,) 170 and odd hogsheads sugar, and 60 odd bales of fine sea island cotton, besides a large crop of corn and other provisions!

No other evidence is needed to establish the great fertility of the Alachua soil; or to show the immense returns capable of being there made from agricultural investment. What one man *has done*, a thousand equally skilful and industrious *may do*: and if any apology is due for the freedom with which I promulgate private emolument, I trust it may be found excusable, in the absence we have of *other* means of comparing the fertility and capabilities of this new country; as well as in my aim, that the speculative world may be attracted to an examination of this wealthy, yet vacant land. The advancement of the public weal augments the prosperity of individual interest; and upon this truism, I hope yet to see intrusive and prying science embowelling the concealed mines of Florida.

Alachua has, bestowed by nature, a liberal share of her best advantages. With an extent of latitude, embracing both a temperate and tropical clime; and affording a *choice* of navigation and intercourse, either direct to the gulf of Mexico, (of which it constitutes a part of its eastern boundary,) or through the tributaries of the St. John's River, to the Atlantic. With a soil rich beyond exhaustion, rich in perpetual pasturage, and valuable timber, and varied in texture and qualities; congenial to the production of almost every northern and southern staple of commerce. With open and commanding roadsteads, among which are notable Charlotte's Harbor and Tampa Bay, equally proverbial for good anchorage, accessibility, and uninterrupted health. All these are advantages singularly combined, and which must not only create rapid wealth and improvement, but ultimately rank the County of Alachua as the "*Jewelled Queen of Florida.*"

My next letter shall not be so prolix, and will be upon the Middle District.

FARQ. MACRAE.

For the Farmers' Register.

VEGETABLE AND ANIMAL ANALOGY.

[Continued from page 756, Vol. II.]

Observation teaches that nature has implanted appetites as various among vegetables, as we find in the animal kingdom, and hence arises that endless diversity of their qualities and properties. They are so differently organized, and had implanted in them originally, such various appetites, that every order and species of the two kingdoms may receive certain principles from the earth, which when combined in certain proportions, shall constitute the animal or vegetable; and although they may be equal in size, and similar in their general conformation, as to external appearances, and nourished by the same food, shall differ in strength, texture, and solidity. This, however, can only be explained upon the principle of a difference in organization; viz: a difference of capacity in their vessels, glands, &c., whereby certain portions of the same food are received, or rejected, according to the structure of those parts, or capacity for receiving suitable proportions of aliment. A plant extracts from its gross parent (the earth) those principles which are suited to its nature and constitution; the earth always ready to give, but the plant is not willing, and rarely receives any thing but what is proper for its subsistence: it is worthy of remark, that in soils most favorable for the production of the various mild esculent or nutritive plants, *nicotiana, cicuta, hyosiamus, digitalis, lauro cerasus, datura stramonium, moukshood*, &c., flourish and arrive at great perfection. There can be no doubt that the principles received from the earth, by those noxious plants which constitute their most virulent and active qualities, are not intimately blended with that which affords nourishment, and becomes a component part of all the nutritive tribe. Their organization, or the capacity of their absorbing vessels, are such as necessarily exclude those poisonous principles; and it seems that by virtue of an inherent or instinctive principle implanted in them by the author of their existence, those offensive matters are uniformly rejected. From this circumstance may we not infer, that both the animal and vegetable kingdoms possess the power of receiving food when it is offered them, and also the faculty of choosing. Animal and vegetable instinct may probably be admitted, since we cannot with greater propriety call that principle of a child by any other name, which prompts it to seek the breast of its mother, soon after it comes into the world; and that of aquatic fowls to seek water, as their natural element, soon as they are disengaged from the egg-shell; and that of a vine to rear its head to the highest places, and entwine every branch within its reach, as if mindful of the danger to which it must be exposed, if spread out promiscuously upon the earth. Many other circumstances relative to vegetables, would, at first view, seem to prove that they possess sensitive and instinctive qualities, not unlike those of animals.

The vegetable and animal kingdoms derive their support either directly or indirectly from the earth, through certain media. Many of the large vegetable seeds, when divided longitudinally, present an entire plant with its stalk and foliage complete in miniature, and nothing wanting but to be placed in reach of what it is destined to receive

for its further developement. We may perceive at the same time, that this little germ has a partial connexion with the farinaceous matter which protects it, at this early state, from external injury, till, like the chick confined in its shell, which has exhausted the resources of its confinement, and arrived to that degree of maturity which enables it to sustain the impression of the earth and atmosphere, it bursts forth and seeks new acquisitions in the earth. It is probable that this germ is nourished, and thus far developed, by the channels of its connexion with the farinaceous matter which forms the body of the seed: yet from some experiments made with the bean, it seems that the germ, so far unfolded as we find it in the ripe seed, is not necessarily dependent on those channels through which it had previously received its nourishment, for a final germination in the earth. This farinaceous matter may be separated and removed without the least injury to the plant, and this too before it has rooted. On dividing the two tables of the bean longitudinally, we perceive the germ pretty firmly embraced by each of them, forming a sort of cylindrical mein or link of connexion, which is merely partial or temporary, for those two bodies, though lively and juicy at an early stage, wither and fall off at a certain period when the plant has put forth roots and leaves; which circumstance inclines me to be of opinion, that they serve some useful purpose in the way of assimilation or transmission of suitable juices for the nourishment of the germ—though this may also be rendered somewhat doubtful from the following experiment. The germ was carefully detached from the two tables of the bean, having previously provided a suitable space for its reception by hollowing each of them: this was done in such a manner as to free the entire germ from any degree of pressure that might be made on it by the two sides of the bean, when they were brought in contact—having bound them pretty firmly together and placed the whole in moist vegetable earth—on examination the third day, the germ had become so enlarged, as to put the bandage very much on the stretch. It was now removed from the tables of the bean and placed naked in a fine bed of earth which had been prepared for asparagus, where it soon rooted and flourished as an ordinary seed would have done in its natural state. Hence an inference may be drawn in favor of the opinion, which supposes the fœtus receives no nourishment by the umbilical cord. Nevertheless, I am well assured that the seed of vegetables as well as animals, receive their nourishment through the channels I have mentioned, during their attachment to the parent.

I am unable to conceive how nourishment can be conveyed to vegetables, if the mouths or extremities of those vessels which open on the surface of the roots, be quiescent. Capillary attraction above would hardly convey the necessary principles to the different parts of the vegetable. If it be not allowed that those vessels possess irritability and contractibility similar to those of animals, the whole process of vegetation must be performed mechanically. It must be explained upon the supposition, that a partial vacuum is formed in their vessels, or the fluids they contain become rarified, or less dense than those which are afforded by decomposition in the earth, and brought in contact with their rooty fibres; if this be the case, those fluids, according to the general laws of gravitation, must press forward and occupy the void spaces. But I think it much more probable that these vessels possess excitability or aptitude of motion, and perform their office similar to the lacteal and lymphatic vessels of animals—their food as it is offered by the earth, being in a similar state to that of animals as it is found in their digestive organs, where the mouths of the lacteal vessels are open to receive it for the nourishment of the general system.

There seems to be a remarkable similarity in many of the operations of nature, and it is this obvious analogy, discoverable in the astonishing works of creation, that gave rise to the opinion, that it is not more necessary for a continuous route of circulation to be kept up between the mother and fœtus, in order to produce its evolution, than that the earth should be considered organical, and continuous vessels form between it and vegetables at the time of their germination, for the purpose of conveying into them the various matters of which they are formed. A tree acquires from the earth its cortical and ligneous parts, without a placenta to assimilate, or an umbilical cord to convey to the general system; and is on a footing with an animal which is disengaged from its mother, and seeking food in the earth where it may be found. The general operation of nature, as it regards the production and nourishment of the two kingdoms, is decidedly analagous, with this difference, that animals receive their food somewhat refined and assimilated, while the vegetable kingdom extract it from the crude matters of the earth.

In order to pursue the analogy between animals and vegetables with perspicuity, we should consider the fœtus entirely distinct or unconnected with the mother; or rather as having no further connexion between them, than that which may be dissolved without causing a solution of continuity; or perhaps it may be admitted with some plausibility, that they are connected in a manner similar to that in which the various vegetable seeds are to their mother stalks previous to their maturation: at which period we observe the temporary union is dissolved, and they fall off spontaneously. It is not until they have arrived to this state of maturity and independence, which prepares and enables their delicate organs to receive nourishment directly from the earth, that they are disengaged from their maternal dependence.

In like manner, the female of the animal kingdom, when pregnant, may justly be said to bear seed, which become ripe at the usual period of parturition. At this crisis the temporary union of the placenta, with the uterus is dissolved, and the fœtus ushered into light and life.

GALEN.

REPLY TO "COMMENTATOR'S" REMARKS ON GALEN'S COMMUNICATION.

To the Editor of the Farmers' Register.

I have seen in the 12th No. of your Register, Vol. II, "Remarks on the papers contained in No. 9 of the Farmers' Register," by "Commentator." I beg leave, Mr. Editor, to subjoin a few of his remarks. "With Galen's communication, I was, upon the whole, much pleased; although I must

say, that he delivers his opinions—however important the subject, rather too abruptly. For instance, he asserts—without the slightest doubt or qualification, that as to plants, "the earths afford no real nourishment themselves, but act entirely as exciting agents." Now, do not all agriculturists admit that there *is* such a thing as *the food of plants*, and that it is supplied either by *the earths*, or *by water*, or *by both?* Will they not also admit, that "exciting agents" cannot, with any propriety, be called suppliers of food? Where then is Galen's authority for assuming *that* as a fact universally admitted, in support of which, he offers nothing, but his *ipse dixit?* His concluding sentence furnishes another instance of a highly important assertion, entirely without qualification, or illustrative argument to sustain it. I subjoin his own words: "There is a wonderful similarity between the vegetable and animal world; they are both governed by the same laws—the various agents that act upon them are similar," (to both these assertions there are numerous and striking exceptions,)—"their organization in many respects the same, and they both possess motion, sensation, and life." This last assertion also, is much too broad; for, not to cavil at the term, "possess motion," instead of the power of motion, the motion and sensation ascribed to vegetables are as really unlike the motion and sensation of animals, as any two things can possibly be, between which any sort of resemblance has been supposed to exist. Such fanciful analogies may do very well as ornaments of style, but not for scientific agriculture."

"Commentator" thinks I have delivered my opinions "rather too abruptly"—be it so. I wish, however, to be particularly understood, and if "Commentator" has read my communication in the February No. of the Farmers' Register with attention, he will do me the justice to say, that I confined my remarks to the simple or primitive earths, viz: silex, lime, magnesia, alumine, and barytes, and not to compound earths containing foreign or extraneous matters. With all due respect to the opinions of "Commentator," I must be permitted to remark, that I have been educated to believe, and do now believe, primitive earths afford no real nourishment to plants, but act on vegetable and animal matters, hastening their decomposition: and the principles arising from the decomposition of water, air, vegetable and animal matters, feed and nourish plants. If the food of plants is supplied from primitive earth, why the necessity of adding manure? Seed, deposited in silex, lime, magnesia, alumine, or barytes, may possibly germinate, and live until the germ has devoured its farinaceous matter, but they cannot possibly mature with all the atmospheric air and water that can be given. This I suspect "Commentator" will admit, and if admitted, would it not be fair, at least, to infer that they do not contain in themselves any nourishment, but act on foreign agents as stimulants or excitants? "Commentator" asks this plain question, "now, do not all agriculturists admit that there is such a thing as the *food af plants*, and that it is supplied either by the earths, or by water, or by both? Will they not also admit, that 'exciting agents' cannot, with any propriety, be called suppliers of food?" Yes, all agriculturists must admit that there is such a thing as the food of plants, but I am strongly inclined to think, *all* will not admit that it is supplied by the primitive earths. Again, I take leave very respectfully to remark, that "Commentator" is mistaken if he is under the impression that I have stated exciting agents are suppliers of food—I have not, nor did I intend to convey such an idea; I merely stated, that earths were exciting agents—lime, for instance, acts upon straw, or some extraneous matters, and becomes the exciting agent in their decomposition.

With regard to my concluding sentence, which seems to "Commentator" so very objectionable, I believe philosophers of every age have thought with me, or perhaps I have thought with them, that "there is a wonderful similarity between the vegetable and animal world, &c." Yes, the various laws and agents, I think, are similar, for they are both acted upon by similar causes, viz: light, heat, air, water, food, &c.; and I might add, that both kingdoms are surrounded by ten thousand irritants, that act upon, and effect them in a similar way.

I believe vegetables not only have the power of motion, but possess motion in some degree, and I am not alone in this belief. Many plants are said to recede from the approach of the finger, and we have all seen the tall sun-flower turn to the *great luminary*, face to face, and follow him throughout the day. With respect to vegetable motion and sensation, I do admit it to be very *unlike* the motion and sensation of animals. As it regards "fanciful analogies," they are common, quite common: perhaps they are to be found in some of the "Remarks on the papers contained in Nos. 9, 10, 11, of the Farmers' Register," my "*ipse dixit*" to the contrary notwithstanding. I am much pleased with "Commentator's remarks," and regret that he did not commence with the first Vol. of the Farmers' Register.

GALEN.

The following letter was evidently written as soon as the article referred to had been read, and before noticing that the earlier piece of "Viator" had been discovered and republished in a later sheet of the same No. But though the first purpose of our correspondent has been anticipated, his after observations are not the less interesting and deserving of notice.

ON MILKING COWS.

To the Editor of the Farmers' Register.

Baltimore, July 3, 1835.

I was much pleased this morning with the article in your July No. on the spaying of cows, and write this note merely for the purpose of putting you in possession of the information necessary to complete the historical part of the discovery. In Vol. XIII, page 53 of the *American Farmer*, (April 29, 1831,) you will find an article copied from the New England Farmer, signed "Viator," which contains the first and only record of Mr. Winn's experiments. It is undoubtedly the article from which the French obtained the suggestion; and this will not appear strange when it is recollected, that the American Farmer was regularly received by one or more of the agricultural societies of France, by Lafayette, and several others. I have full confidence in the success of the experiment, if fairly and properly tried; but

have endeavored in vain to induce persons having the means to make the trial. Indeed I have not been able to find any one who could perform the operation. As you have the American Farmer to refer to, I have thought it unnecessary to copy the article. By the way, I had almost forgot to state the cause of my pleasure on reading your article: it was with the very excellent directions given in it by M. Levrat for performing the operation, which will enable almost every one, of *nerve*, to spay a cow. I should much prefer throwing the cow down on her right side, with her head declining upon the side of a moderate hill obliquely downwards, her back towards the declivity. But probably the best fixture would be the *gallows*, or frame, in which the smiths sling oxen for the purpose of shoeing.

Much of the advantage of spaying will of course depend upon the previous management of the cow. A good cow, of almost any breed, may be secured by proper management with the first and second calf. The young cow should have plenty of good pasture, pure water, and salt, regularly; then, if she be not allowed to suckle her calf, after the udder shall have become healthy, (generally three to seven days after calving,) if she be regularly and *thoroughly* milked at six in the morning and six in the evening, I would be willing to warrant her to become a first rate cow when she has her third calf. It is as important that a cow be milked regularly as to time, as it is that she be properly fed. Nature accommodates herself to all our practices, provided they be not unreasonable; but she will not be trifled with. Therefore, if a cow be allowed to suckle her calf, she gets in the habit of secreting a certain quantity of milk every half hour or so; and when the calf is weaned, we cannot correct the habit so as to adapt it to the required milking every twelve hours: therefore, the calf should not be allowed to run with the cow at all; nor to suck her, after her udder is in order. Neither should we be careless as to the times of milking. The day should be *equally* divided, else between the morning and the night milking, there will be fourteen to sixteen hours, and between the night and the morning there will be only eight to ten; and the consequence will be, that nature will be baffled in her regulations of the animal's habit, and she will be injured as a milker. Now, if a cow has had all this previous care and attention, she will, four weeks after her third calf, come to the pail with a full bag of milk, and may then be secured as a permanent milker by spaying; as I verily believe, both from the facts stated by "Viator," and the experiments of M. Levrat, and from the reasonableness of the theory. I hope some of your friends will try it.

When I began to write, I only intended to inform you where to find the record; but my pen has run wild. When I get upon a subject of this kind, I never know when to stop.

GIDEON B. SMITH.

ANTHRACITE ASHES.

The *Philadelphia United States Gazette* says, "a lot of land, clay and sand, was covered over with ashes from anthracite coal, and clover seed sown upon it in abundance. The clover after waiting a little while longer than usual, sprung up like an ill weed, and about two weeks since presented a luxuriance of growth exceeding any thing of the kind we ever saw. The clover had the appearance of tall pea vines, so rank had it shot up. If anthracite ashes have such virtue, it would be well for the public generally to understand it."

From the New England Farmer.

SCRAPING FRUIT TREES.

East Hartford, June 15th, 1835.

Dear Sir—I have for the two last years scraped my apple and pear trees towards the latter part of June or commencement of July, and think from the experiment it is much the best season to scrape the ross from the body and large limbs of fruit trees, I have ever tried. I prefer to scrape them with a hoe soon after a rain, as they scrape much better when moist.

It is well known that many apple trees bleed, turn black, and are much injured, when scraped in the spring season. I knew it was the rule with some farmers (if they had a tree in their orchards that was unthrifty, or was not good to bear) to peel off the whole bark from the body of the tree during the longest days in June, and that a new bark is soon restored at that season. If the trees are scraped abundantly, and some of the bark entirely torn off, they heal immediately and do not bleed. I cut several decayed limbs from one tree two years since, which healed over much better than when trimmed in the spring. I think the fruit on those trees scraped in the above manner much improved in size, as well as in the general appearance of the trees.

"FLORIDA COFFEE."

To the Editor of the Farmers' Register.

Early in May last I had an opportunity, for the first time, of seeing some young plants of what has been called "Florida coffee," from which I was satisfied that it is not *okra*, and that it is probably a species of *cassia*, several of which are natives of the southern states, and are particularly abundant in Florida. This opinion I expressed at the time in a letter to you: and I perceive from an article in your June number, that it is confirmed by Mr. Herbemont, who states that is a *cassia*. When the plants which Mr. H. is cultivating shall have been fully developed, he will no doubt be able to ascertain the species, and thus we shall arrive at a knowledge of the true nature of the plant.

H. B. C.

June 20th, 1835.

COTTON SEED AN ARTICLE OF FOOD.

To the Editor of the Farmers' Register.

It was formerly said that in some of the southern states the negroes were fed on cotton seed. In this there was no truth whatever. I was therefore not a little surprised when I read (in the Encyclopædia of Plants,) that cotton seed are used in the south of Europe, by the poorer class, as an article of diet. As they have none of "Follett and Smith's Hulling Machines," it would be curious to know how they dispose of the outer covering of the seed.

H. B. C.

For the Farmers' Register.

NOTES OF A HASTY VIEW OF THE SOIL AND AGRICULTURE OF PART OF THE COUNTY OF NORTHAMPTON.

The county of Northampton, which forms the lower part of the peninsula called the Eastern Shore of Virginia, presents a remarkable appearance of uniformity, in the level surface and general qualities of the soil, and in the mode of tillage and general management. The land has but little elevation above the water which almost surrounds it; and the level of the surface is rarely changed so much as to effect tillage or labor injuriously—and nothing deserving to be called a hill is found any where, unless the abruptly rising (though low) borders of creeks be so designated. The soil is universally sandy, and differs very little in texture or appearance, and is not more than three or four inches deep. On the bay side, below the sandy subsoil, there is generally a yellowish clay, lying from twelve to sixteen inches below the surface, and which is open enough to permit the filtration through of rain water. Below the clay is a barren white sand. The clay is generally deficient entirely elsewhere, or is not found within several feet of the surface. The rate of fertility, though made different by nature, and still more so by the difference of treatment under tillage, is yet more uniform than any other considerable tract which I have observed. No one acre seems to have been very far below the medium grade of natural productiveness, and not many are very much above it. No land was seen which appeared half as rich as the best soils west of the Chesapeake—and none as poor as the worst—which are far more abundant than the rich, on both sides of the bay.

Flat and narrow as the county is, (the mainland varying between two and eight miles in width,) there is a central ridge of a little more elevation, and of worse and poorer soil than the lands on the bay and the sea side. Of the two last, the lands on the bay are generally the best. But a very large proportion of all the lands lie on the bay and the Atlantic Ocean, or on the creeks and inlets. It is said, that there are very few farms in the county distant more than a mile from navigable water. This is an immense advantage enjoyed by the farmers—and another connected with it is, that every Atlantic market is open to their choice. A string of long, narrow and low islands, barely separated from each other by inlets, serve to protect the mainland from the fury of the ocean, and in the navigable sounds, between eight to twelve miles wide, keep comparatively smooth water, when the wind is producing awful effects at the distance of but a few miles. These islands are part of the chain which reaches from Florida to Delaware, and offers between it and the mainland, a safe inland navigation for stout sea vessels, which is scarcely interrupted by too shallow water, or too open sea, during the whole distance.

The waters bordering on and intersecting Northampton, are not more valuable for navigation, than for furnishing in great plenty and variety, fish and wild fowl. The greatest delicacies for the table which salt water yields, are here common and cheap: and coarse fish, which are prized in our fresh waters, are here caught in such numbers, that they form a valuable resource for manure, which a few enterprising farmers have already begun to profit by using.

Though the soil is sandy, and almost universally so, it is less so than is generally reported. I saw but little land that seemed as sandy as much of the county of Surry—and the greater portion of the soil is not more sandy than part of Lower Weyanoke in Charles City, the farm of the late Fielding Lewis, which, since being limed, is so productive under wheat, as well as in the crops more suited to light land. Yet scarcely any wheat is made in Northampton—and from the very few trials of this crop on a small scale, it has been decided generally, (and no doubt correctly,) that the soil is quite unfit for the profitable growth of that crop. The use of lime, or other calcareous manure, would probably remove the existing obstacle to wheat culture: though even then it might not be so profitable as the crops now preferred. Wheat has been often raised with sufficient success to encourage the farmer to persevere in the culture. But he has invariably found that there was a great diminution of product when wheat was sown a second time on the same land, in its proper turn in the rotation. I have heard of a like result on the sandy land of Sussex, as ascertained by two rounds of the rotation of a very intelligent practical farmer.

The rotation of Northampton, which may be almost said to be universal, is 1st, corn—2nd, oats—and so on every year as long as cultivation is continued on the same land—and that has been known to be, on some fields, and those never manured at all, for more than sixty years. The only material variations are in the management of the land in the interval of time between reaping and stacking the oat crop, and ploughing the land in the next winter, or early part of spring, for the succeeding crop of corn. Some very few farmers permit no grazing: a greater number graze during that whole time, but not so closely but that much of the volunteer growth of vegetable matter remains to be turned into the earth by the plough. The others, and they are the far greater number, graze as closely as can be done by all their live stock. Some even believe that the closest grazing is most beneficial, and leave the fences down that their fields may be a common pasture for all the roaming stock of the neighborhood, between the removal of the oats and the beginning of preparation for corn. Ten or twelve years continuation of this latter practice, in at least one case, has not served to prove so satisfactorily, to the individual who has pursued it, the evil of the practice, as to put a stop to it. But the grazing in general, is not so close as might be supposed from the unrestrained access of each farmer's live stock, because their number is kept small by the nature of the land and mode of tillage. There is but little grazing land before the oat harvest—and the products of live stock, as well as their numbers, are smaller than usual elsewhere. This fault in their husbandry, (as it may be considered in one respect,) perhaps has saved the fields from exhaustion.

Whoever may for the first time hear this rotation described, will be ready to pronounce it as having been devised and commenced in ignorance, and carried on in direct and manifest opposition to all the established principles of agricultural science—and that persisting in it for any considerable

time, must always be unprofitable to the farmer, and result inevitably in the destruction of the fertility of the soil. But strange as it may appear that such a rotation should be in general use, it is still more so, that it should be maintained by the general, if not universal testimony of the inhabitants, that the production of the county, for the whole space under tillage, has not been diminished under this system—that the exhaustion of particular farms when worst managed, has neither been rapid, or considerable, in any short term of years—and that when attention has been paid to collecting and applying manures, and grazing has been prevented, the most enlightened farmers concur that the rotation, so aided, has been found to increase the crops regularly, and for a long term: in short, that the rotation is decidedly an improving one, when judiciously conducted; and most probably that it is better for the farmer than any other more conformable to the generally received opinions on agricultural improvement. It must be at least admitted, that many and strong facts, and those tested by long experience, are brought to sustain the superior advantages of the Eastern Shore rotation.

There is one additional feature of the tillage here, which in many cases has had much influence in aiding the benefits, or lessening the scourging tendency of the rotation. This is the growth of a plant which has great value as an improver of fertility, and which is peculiarly adapted to sandy soil, and to the succession of crops here in use. The Magothy Bay bean is a plant of the pea tribe, and the whole of that tribe seems to possess greater power than any other for acting as manure. Clovers are of the pea kind, and red clover stands at the head of the class of green manures. But though a good cover of Magothy Bay bean is probably of far less value as manure than a good cover of clover, yet the former growth in general is more valuable, because requiring no regular sowing, but very slight care for its perpetual preservation, and producing crops far more luxuriant than could possibly be obtained of clover, and perhaps of the most worthless weeds on the like sandy soils. The seeds are very hard, and slow to vegetate, and will remain sometimes for years in the soil before sprouting. This quality prevents the tillage of corn, however perfect, serving to root out, or materially thin the after growth. The spring ploughing for oats retards the springing of the plants, until the oats are enough ahead not to be injured by the undergrowth of beans. At this time, (July 10th,) the reaping of the oats is generally going on, or has been just finished where most forward. The undergrowth of Magothy Bay bean is from three to eight inches high, according to the condition of the land, (rarely more than six inches) and is not a material impediment to reaping and saving the oats. It is even now a beautiful growth—but its present appearance is nothing in comparison to what will be exhibited in August, and from that time to frost, according to the descriptions given of the well covered fields, and which I can well believe from the more sparse growth which I have seen matured at home. The flowers are very abundant, and of a deep and beautiful yellow—and continue to open for many weeks. The whole plant was well described by Bordley, as a "Lilliputian locust tree," with which it agrees in the general form of the flowers and leaves. The beans rise rapidly as soon as the shelter of oats is removed, and acquire a height usually varying between one, and two and a half feet, according to the land. Even where no care whatever is taken to preserve the succession of plants, and indeed where the tillage and grazing (under the common rotation) is such as would effectually destroy any other kind of any value, this continues to be the most general cover of the land after the oat crop—though, of course, a scattered and thin cover compared to what is found under more favorable circumstances. Cattle feed on this plant, and indeed find not much else in the fields, after the scattered oats have been picked up. Hogs strip off the green pods, and to the extent of their operations, destroy the seeds. When matured, the seeds are so hard that they would probably pass through the body of an animal uninjured. The plant is an annual. The leaves fall before winter, and the stalks seem so hard, that many persons would on that account deem them of but little value as manure.

In the few cases where the land is not grazed at all, and even where the small number of the farmer's stock prevents much of the bean cover being taken off, it is evident that there are sufficient means afforded to preserve the succession of the growths of this plant. Where several successive hoed crops, or other circumstances, have thinned the bean cover, it is easily increased by a means used by those who attach proper value to this improving crop. Numerous plants spring up in the land under corn, which are generally, of course, destroyed by the ploughing of that crop. But near the plants of corn, some bean plants will grow out of the way of the plough: and as but little hand-hoe work is used, or required, the neglect of weeding, as well as the design of spreading the growth, serve in this manner to furnish numerous seeds to be added to those then buried in the earth, and which will spring the next year.

Where the land is not grazed, or even when the grazing is but slight, the Eastern Shore rotation, though nominally the same, is in truth altogether different. It then consists of a regular succession of *three* crops—corn, oats, and Magothy Bay bean—the last being a *crop of manure* regularly turned in to sustain the land under the two succeeding grain crops. This improved practice would take away the objection to the perpetual succession of grain crops—and presents a rotation perhaps as conformable to sound theory, and furnishing as large a supply of food (*grown on the land*) for plants, as is found in the best modern practices under what are called three and four-shift rotations. The circumstance that this three-shift rotation has only two years' length, is decidedly in its favor. If all other things are equal, and an equal proportion of the rotation is of meliorating effect, the more crops that it will furnish the better, within any certain term of years. One of the greatest causes of the superior productiveness of the farms in Flanders, is found in the frequency of secondary crops, by which two crops are obtained from the same field in one year. The great objection to such cropping in this country, is the amount of labor required at very busy seasons, and that the low price of land offers no inducement for such perfect tillage. But the secondary crop of the Eastern Shore rotation requires no trouble or cost of preparation or tillage—and there-

fore may be used to the greatest advantage where the peculiarity of soil favors the growth of the Magothy Bay bean—and forbids (as is supposed to be the case here,) the adoption of other courses of crops, which would be incompatible with the growth of that valuable plant.

It may be asserted then, according to the foregoing views, that the mere difference of using this green crop directly as manure, or for grazing, will serve to place the usual tillage of this country under a mild and improving rotation—or under one which, though it seems not to be ruinous *here*, well deserves to be so, and would be so, I think, on any other land to which my labor, or personal observation, has been directed. And why it should be otherwise here, I cannot hear or conceive a satisfactory reason, though the fact is readily admitted to be true. The reason which is generally assigned for the sandy soil here bearing up so long under the worst use of the corn and oat rotation—and for being actually improved under its best use—is the beneficial influence of the air, which is supposed to be loaded with salt vapor from the adjacent and almost surrounding waters of the Chesapeake and the ocean. Without discussing the truth of the fact of salt being thus continually conveyed to the soil, it seems incredible that salt in any quantity can act as an alimentary manure to grain crops, or perpetually renew the whole or any portion of the wasted fertility of soil. From time to time, persons have discovered great value in salt as a manure—and much more frequently its use has been found of little value, when not decidedly injurious. But the most sanguine advocates for the use of salt as manure, have not supposed it to give *directly* food for plants, as dung does, or as being a manure which by annual repetitions can possibly continually renew the productive power of land. If this were so, surely men might copy nature's practice in this respect, and wherever the price of salt did not forbid its use, inexhaustible fertility might be produced and maintained. But I cannot think that any vapor, salt or fresh, can be serviceable to grain crops, except as furnishing additional supplies of moisture: and this effect, though highly beneficial to grass crops and grass husbandry, when considerable, is at least of very doubtful advantage to grain crops.

But I repeat that there is no question of the great power of these lands to resist exhaustion under a scourging and barbarous course of tillage—nor of their fitness to be easily and profitably improved by the best practices already (though rarely) here in use. I do not rely for this conclusion on the experience of any one farmer, however intelligent and well qualified to judge, and however much entitled to command belief, and the utmost respect for his opinions—nor on the state of any particular farms, long kept under either good or bad culture. I have heard many proofs of these kinds which might be adduced by others. But my cursory views and hurried inquiries having been limited to but a few days of personal observation, they were not sufficiently accurate for such detailed statements, even if that course were not forbidden by the length to which they would extend this sketch. Such details, however, from those possessing better means for observation and the collection and comparison of facts, would be highly valuable and interesting—and it is earnestly hoped that such will be given to the public at a future time, by one or more of those better fitted by their location for the task. If I can attract attention to subjects which deserve it, and induce any others to furnish more accurate information, my end will be accomplished: and even the inaccuracies, or unintentional misrepresentations, which my very imperfect notices may perhaps exhibit, will not be regretted, if other persons should be thereby drawn forth for their correction, and to supply the more numerous deficiencies. This has been the motive of my offering such hasty and imperfect observations, and must serve as my apology for doing that which in general ought always to be avoided—that is, writing and publishing opinions on subjects that we know very little about. But by such means, in several former cases, very valuable and interesting communications have been elicited from others, and discussions have been produced which have shed much light on agricultural practice and opinions. To similar effects, I hope these imperfect notes may be the humble instrument of impulse.

To return to general results. Very little land in Northampton, compared to the mainland of Lower Virginia, has been "turned out" of cultivation, because exhausted, to grow up in trees. And where this has been done, though of course the most impoverished land was so treated, the motive was in part to permit pine timber to grow, to supply the place of that which was taken off from the small amount of woodland on the farm. Wood and timber are very scarce, and but little land is given up to even the growth of what they have, which is unfit for building purposes, and but of small value for fencing or fuel. The extensive clearing and destruction of good timber has been caused by the demand for land for cultivation, and encouraged by almost every acre of dry land being fit and profitable for the plough. I have seen scarcely any land recently "turned out:" and all which has been at any one time thrown out of cultivation—admitting all to be on account of extreme poverty, and for the purpose of being recruited in fertility under pines—must be inconsiderable. Therefore the continued productiveness of the county in general, cannot be materially aided by this cause. Neither is it to be attributed to the great and profitable improvements made by particular individuals, by means of using manures not derived from their own fields, whether putrescent or of a more permanent character—for these examples have, unfortunately, been too few to have a considerable effect on the general products and profits of the county. The lands which have produced nine-tenths of all the grain in the county, and those which now produce as large a proportion, probably may embrace not one farm which has been so badly cultivated as to have been kept up by the "turning out" system—the pine-tree-manuring it may be called—nor one on which the owner has used lime, shells, or any manure purchased or brought from abroad. Excluding then the most exhausting and bad cultivation, and also the most improving and profitable, the remaining lands will show fairly the effects of the usual mode of tillage in this county—and in general, they appear to be such as will be now stated.

According to the system of tillage described, there is no such thing as any field having a year of rest: every acre (except the small amount of woodland reserved for timber and fuel, and the

still smaller amount of land "turned out,") is under a crop once a year. Of course, *supposing products to continue equal*, there is twice the amount of cultivation, of amount of crop made, and of laboring and consuming population, as there would be if the land was at rest, and producing no crop two years in four. The people are in an uncommon and remarkable degree, (for Virginians, I grieve to say—) attached to the place of their nativity, and seldom think of emigrating to the far west, or even to the "Western Shore," (as they call all Virginia except their own narrow streak of land,) unless driven by the impossibility of obtaining a laborious support at home. It follows that the people are too many for the land, as it now produces, and the demand for land, both on purchase and rent, is as high as the profits of cultivation will permit—but not higher than that point, as is abundantly proved by the permanency of such prices, as well as by other circumstances. It may be safely asserted, that the average price of land in Northampton, is three times as high as that of the average of the lands in Prince George and Surry, which border James River and extend back eight miles, and for nearly all of which, marl might be used with sufficient facility and profit—an immense benefit of which the Eastern Shore is deprived. In all that space, embracing some of the best and some of the poorest land in Virginia, though there are a few tracts which might sell for $30 the acre, the average price would hardly exceed $5—and many tracts containing marl, notwithstanding the increased demand and price for such land, would sell for $3. In Northampton, there is but little land (excluding the sea islands,) under $14, and much would now sell for more than $20—and the average price throughout would not be less than $15. It may however be objected, that such prices cannot be founded on correct estimates of profit, and therefore are no certain evidence of value. It would be very difficult to put down such an objection to high prices, if every man tilled his own land. But the best proof is offered here in the fact, that a considerable proportion of the soil is regularly tilled by tenants, and that there is demand for all offered to be rented out, at such shares of the crops as will pay six per cent. net, on the purchase, at the high existing rates. This is sufficient proof that the landlord can afford to buy and to retain land at the present prices. And if a tenant pays too high rent, he cannot fail to make the discovery by the time a year has passed. It may be safely assumed that annual rents, in general in every country, and especially in the United States, can never remain higher than tenants can afford to pay. Poor land is here rented, and cultivated in the ordinary rotation, at never less than one-third of the grain, and also of the smaller, yet important crops of castor bean and sweet potatoes. If of a little better quality, (and yet such as appeared to me quite poor,) it will pay two-fifths of the corn, and one-third of the oats and other smaller crops. Good land, say any yielding four barrels of corn, may be readily rented to tenants for one-half the crops made. The landlord keeps the buildings in repair, and the tenant the fences. For land of apparently equal productiveness in Prince George, not half the same nominal rent can be obtained—nor can lands be rented out at all, as a regular and continuing system, to any who will so cultivate and manage them, as not to injure their value nearly as much as the amount of rent is worth. From all that has been heard on this subject, I cannot but believe that the lands of Northampton are well worth their present prices, under their present management: and, if from so slight a glance I may presume to offer the opinion, it seems equally clear, that by retaining what is really excellent in their system, avoiding some very general errors, and adopting means for additional improvement, which are quite available and yet almost totally neglected, that the same exercise of industry and economy so directed, would advance the net profits, and of course the prices of land, to the double of the present estimates.

It is admitted that there are reasons why the Northampton lands should be worth more in proportion to their average and continued returns to the acre, than most other lands. Such reasons are presented in the almost entire absence of all waste and worthless spots, whether in ravines or hill-sides, or for want of drainage—great ease of tillage, caused by the soil being level, dry, and light, and by its being kept always clean by annual cropping. But though these are important causes of value, they are not greater than the different advantages which other lands west of the Chesapeake possess, and which, notwithstanding, are at prices very far inferior. The cheapness and profit of marling on many poor soils, and their after fitness for wheat and clover husbandry, and the natural fertility of the best soils, seem to be at least a fair compensation for the want of other advantages peculiar to the Eastern Shore. If then the latter lands are held at fair prices, as there seems no ground to doubt, the good or improvable lands west of the bay are just as much below fair prices, as they are below the usual prices in Northampton. Why this remarkable difference should exist, is an interesting subject for inquiry, and the results would serve to throw much light on the causes of the general decline and low state of the prices and profits of landed property in Virginia. From the slight view which I have been able to take, it appears that the principal cause of the remarkable difference in the prices of lands on the Eastern Shore and in the balance of lower Virginia, is found in the difference of the modes of thinking and acting as to continued residence, and emigration. It may be said truly that the people of the Eastern Shore only, of all the inhabitants of Virginia, as a community, feel that they are *at home*—that they and their children are to live and die where they were born, and have to make the best of their situation. Compared with this state of things, the population of the balance of Virginia may be considered as in a state of *transition*—having future migration in prospect, either for themselves or for their children. If only one-third of the community are operated on directly by such considerations, they are enough to bring all the lands of the country to the prices and condition of their own. With so much land always offered for sale, and at almost any sacrifice, the prices of all must necessarily and continually decline. The formerly contented and industrious and successful improver of his farm, finds that it has sunk in price more than his expense incurred for its improvement—and that he might have bought at a lower price the lands about to be deserted by his neighbors. Hence grows discour-

agement to all permanent and valuable improvements—general and increasing discontent with their homes—and next the willingness, and finally the expectation, of following to the west the more enterprising, or more greedy, who had gone before them. The long continued prevalence of such opinions and habits are alone enough to ruin any country: and the mere absence of this curse seems enough to maintain the superior thrift and prosperity of the county of Northampton. The opposite conditions of the two communities may be compared to the different operations of the institution of marriage when indissoluble except by death, and where the law offers and invites divorce at will. In the former state, the parties are compelled to make the best of their union, and in the latter they would as certainly make the worst of it.

From what I could gather of the opinions of farmers of this county, it was inferred that the land was naturally, as it still appears, of middle quality as to productiveness. I heard of no farm, or even a field, which was supposed by its owner as having in its best and original state, to have produced more than 30 bushels of corn to the acre—which is certainly a very moderate crop on land peculiarly adapted to that grain. Probably in some places near the creeks, there were spots of much greater natural fertility: but all such could not have amounted to any great extent. I saw no land, other than the highly manured lots about dwellings, which now would produce 30 bushels; and not much which by its present growth promised more than 20 bushels of corn. Still I may be deceived in this respect, not only for lack of judgement, but because the grain may be greater in proportion to the general bulk of the plants, than on other soils. This is asserted of their oat crops, which appeared to my eye generally meagre, and very few spots were seen where the growth was very luxuriant. Yet it is affirmed that their ordinary round stacks will yield not much short of 200 bushels—and if of wheat, and elsewhere, they would hardly exceed 50 bushels.

The land was formerly covered with a heavy growth of excellent timber—oaks of different kinds, hickory, &c. as well as of pine. But almost nothing is now left but pines, and those of late growth, and of course very worthless both for fuel and timber. This remaining cover of the land not brought under cultivation, gives it an appearance of having possessed but little fertility, as we involuntarily associate an unmixed growth of pines with the idea of worn out land, or a bad natural soil. But though such growth is probably found here on better soil than it would indicate elsewhere, the general if not universal disposition of this land to throw up pines is enough to prove that it is no where *calcareous*, and that it is much wanting in that essential quality of soil. On the other hand, the rare occurrence of land naturally very poor, and the general and remarkable durability of all, would seem to forbid the conclusion that much of the soil was of such acid quality as lands favorable to pines generally possess. There can however be no doubt but that an addition of calcareous earth is every where wanting, and on every field would give increased productiveness and value. Very little use has been yet made of this all-important means for improvement. There are no beds of fossil shells, or rather they here dip too deep to be reached by any digging yet tried—and some few wells have been sunk to the depth of 40 feet. These beds disappear on the Eastern Shore of Maryland, by sinking gradually as we approach the south, (as stated in Dr. Ducatel's geological report,) and it may be supposed that they underlie the counties of Accomac and Northampton, though at a still increasing depth. But though thus deprived of easy access to this the most cheap and valuable form of calcareous manure, the quantity of shell fish would furnish lime in abundance—and there are many oyster shoals, naked at low tide, where immense quantities of shelly matter might be cheaply obtained. This if crushed would be better than if burned, as there is much putrescent matter which is destroyed by fire. The little use which has been made of quicklime (not extending beyond a few experiments) has not produced results which encouraged the repetition—and hence has arisen the opinion that prevails unfavorable to the application of calcareous matter in general. My observations did not reach farther north than about the middle of the county—but I heard that some gentlemen nearer to Accomac still persevered in using lime. It is not at all surprising that quick or caustic lime should be even hurtful to these lands, however much they may need mild calcareous earth. From the dry and sandy nature of the soil, and the continued tillage to which it is subjected, there can never long remain any inert or insoluble vegetable matter; and on all the vegetable matter in the soil, fit to feed plants, or rapidly becoming so, the caustic and burning action of quicklime is decidedly injurious, by decomposing and dissipating such matters. Thus the early destructive power of the lime, applied in its quick state, has here apparently overbalanced the more slow and permanent benefits which it afterwards produces as mild calcareous earth. This is one of the numerous cases in which a want of the knowledge of the mode of operation, causes even facts to lead to false conclusions,§ instead of teaching truth, as they would do, if properly understood. It is of great importance to this country that a proper estimate should be made of the value of calcareous and marine alimentary manures, as there are great facilities for obtaining both, as well as great need of them on most of the soils.

Next to corn and oats the castor bean, and sweet potatoes are the most important articles of culture in Northampton. There are seven oil presses in and near the little village of Eastville, and perhaps more than twice as many in the whole county. New ones are now erecting. One is to be worked by steam, for which the machinery is provided, and the necessary fixtures are now constructing. This seems a singular, and I fear will prove an unprofitable application of steam power. The oil cake, or "bean pomace" as it is called, is highly valuable as a rich and sure manure. It sells readily at 25 cents the bushel at the oil factories. Its effects are very great, as may be inferred from the price, but they seldom last beyond one crop, unless heavily and wastefully applied.

There is much difference of opinion as to the value of castor bean as a crop, and its effects on the soil, even among those who have most experience of this new kind of culture. One practical and judicious farmer, who is considered very successful in his business, and who had formerly obtained unusually heavy products of castor bean,

told me that he would not continue its culture for the highest price ever known. His principal objection was to its supposed exhausting quality. Others think it not more exhausting than corn—but it requires rich land, and cannot be continued on the same, without an immediate and considerable decline in product. But though a second crop of castor bean will not do well on the same land, if immediately succeeding the first, corn will produce as well, and some think better, than on the same land if not preceded by the bean. The management of this crop is very troublesome, when the time arrives to cut the ripened clusters. If not cut immediately, the outer coverings open and waste the seed—and indeed there is no avoiding great waste in this way. The clusters ripen successively, and ten or twelve times it is necessary to cut over the field, before frost stops the labor by preventing the later beans' maturing. Some persons, who do not consider the crop as particularly exhausting to the soil, are not satisfied that they have gained by this partial departure from their old and general rotation of corn and oats. The castor bean has not been made a part of any regular plan of rotation.

The crop of sweet potatoes is here an important object, not only on account of the soil being very favorable to the growth, but because of the facility for shipping the crop to the northern cities, where good prices are always sure.

The business of grazing live stock is very limited, both in extent and in profit. There are no standing pastures of arable land, and of course, the fields cannot be grazed until after the oats have been reaped and removed. Before that time, the cattle have very scant fare in the woods, and on the firmer marshes which border parts of the sea side. But few give any land to artificial grasses. The soil certainly cannot be naturally favorable to clover: yet it is said that fine lots of this grass are made by the few who give the manure and preparation necessary for the purpose. But it may be said in general, that so far as green food is considered, the cattle have a feast from the middle of July until frost, and a famine the balance of the year. Of course, dairy products in general are very poor. Those who have no marsh pasture, or other waste land fit for grazing, and who take good care of their stock, rely entirely on their grain and offal of the corn and oat crop, not only in winter and spring, but through half the summer.

In the foregoing statements of the general results of the system of culture here practiced, I have chosen to rely more on general concurrent opinion, than on particular facts; because of the great liability of a stranger to draw false inferences from the few facts to which his observations must necessarily be limited. Nevertheless, it may be useful to add some few of even partial and defective observations of facts, which maintain the general views already presented.

When first reaching the shore, it was not so much my object to seek for uncommon though valuable improvements in farming, and the use of means not generally used or accessible, as it was to learn what was the general practice, and the good and profitable practices which might be generally adopted. My inquiries to this end led me first to the farm of Mr. James Goffigon, who has cultivated with success and profit, for more than thirty years, a farm having no facilities for improvement, except what its soil yields. It is on, and eastward of the ridge, midway between the waters of the bay and the ocean, and not touching either. The tillage has been throughout on the regular corn and oat rotation, with grazing after the oat harvest. The horses, (when not at work,) and the few cattle necessary to be kept about the house, and the whole stock of hogs, are kept in a space of two or three acres, and are supported almost entirely on grain, and the dry offal of the previous year's crop, until after the oat harvest. The cattle which are not wanting are turned out in the spring, and go to the marsh land on the sea side. The whole stock, being kept at such disadvantage, is necessarily small, in comparison to the extent of arable land; and they live in great plenty on the pasture after the oat crop, and are unable to keep down, or destroy the succession of the general cover of the Magothy Bay bean. Much manure is made in this very long period of penning stock—is made necessarily, it may be said, when litter is given, as is done here, from the pine woods, as well as the offal of the crops. But Mr. G. does not speak favorably of the effects of his manure—and indeed the summer penning on fermenting litter, would seem likely to be wasteful of the fertilizing principles of the manure, and injurious to the health of the cattle. No other means of improvement, worth counting, have been used: yet the farm has not diminished in product materially, if at all, since Mr. G. has known it, and according to the report of others, is still one of the most productive in the county. But though the farm lies in part on the "ridge," and consists partly of the worst kind of soil in the county, the greater part was of the best natural soil in the interior. The field now in oats is the most distant from the homestead, and a large part of it has never received any aid from manure. Mr. G. supposed that this part would now make 20 bushels of corn, and in its original and most fertile state, might have brought 30 bushels. He rents out the greater part of his land, and the poorest, for two-fifths of the corn, and one-third of the oats, castor bean, and potatoes.

Mr. G. disclaims all pretensions to the character of a good farmer, and attributes all his success to steady attention to his business. He certainly has been an excellent manager of his means: and his undoubted and long continued success, taken in connexion with the total absence of all uncommon, or foreign means for improvement, and his continued adherence to the Eastern Shore rotation, serve to place in a strong point of view, the peculiar and durable good qualities of the soil, and the profit of the rotation in general.

The smaller farm of Mr. Isaac Smith, on the sea side, furnishes an example equally striking, of the ease and profit of increasing the products of an impoverished soil, by using proper means, and such means only as may be availed of by all. Mr. S. took possession of this farm in 1819. The product has been gradually increased, on the same surface, until it is now doubled. Being on the sea side, and having some firm salt marsh for pasture, he has rigidly secured his fields from being grazed at any time, and thus has regularly returned to the soil all of the improving crop of Magothy Bay bean, and secured its regular return as a thick cover of the fields. In addition to this, and to the use of the manure furnished by the stock and offal

of the grain crops, Mr. S. formerly had the benefit of the pomace of castor beans, which he bought to make oil for sale. But that part of his business was never extensive, and he has for some years ceased to make any oil, except from his own crop of beans, raised on the same farm. The use of this manure was not properly understood when he at first might have profited by it, and indeed it was scarcely used at all, or thought to be worth using, except to remove an offensive nuisance. It was thrown out of the factories in bulks, and left to rot and waste—and was used as manure most injudiciously and to great loss. It is now saved under shelter, and applied in very small quantities. Mr. S. thinks that the whole amount of this manure which he used, that was not derived from his own fields, could not have exceeded 1500 bushels of the pomace properly applied. This I mention because it is the only foreign substance which has been used to restore the lost productiveness of the farm—and this is certainly more than counterbalanced by the oil which is every year produced on, and sold from the farm. It would seem then, that whatever Mr. S. has done to improve an exhausted farm, may be done any where, by the means furnished by the land itself, and under the corn and oat rotation, provided grazing is prohibited, and due attention paid to the preservation of manures.

Mr. S. thinks that cotton seed must contain at least as much of fertilizing matter, as an equal bulk of bean pomace—and probably much more, as the former have lost none of their oil, and the castor beans lose all that can possibly be expressed by the most powerful machinery. But the great difficulty with cotton seed, is to apply them as manure without destroying the oil which constitutes their value. Violent fermentation, to which they are commonly exposed, must produce a great chemical change, and particularly on so putrescent a substance as oil. The manure is still rich, but perhaps half its amount and value has been wasted. If applied before fermenting, the seeds sprout, and in the process of germination, the oil is certainly changed to a far less valuable substance. Mr. Smith has tried steaming his cotton seed—and this seems not only reasonable as a means of preserving their whole value as manure, but his experiment of the effect fully confirms the supposition. I saw where the steamed seed had been applied to corn, by throwing a single handful into each place where the corn was planted, and the growth was at least double in luxuriance and in promised product. This is a valuable improvement for other parts of the country where cotton is a large crop. Steaming of seed on a large scale might be done with very little trouble or expense, the object being merely to destroy the germinating power of the seed by heat.

The valuable farm of Mr. W. L. Eyre, exhibits a high state of improvement, and of productiveness that is rare in this county—and which he has principally produced himself, and within the few years which he has been in possession. The land, however, though much impoverished, was originally among the best, which of course gave the greater facility to profit, by the application of putrescent manures. Mr. E. has also abundant means to use calcareous and marine manures, and has availed of them to some extent, but not so much as might have been expected. It is unnecessary to speak more at length on this head, as I can refer to a communication from Mr. E., at page 731, Vol. I. of the Farmers' Register. The old oyster shoals which are there described, are found in various places on both sides of the county. They would not only supply calcareous manure, but other kinds in the salt, the mud, and the remains of putrescent vegetable, and animal matters. Another excellent use might be made of this as a material for compost heaps, in which should be placed in layers the fish which may be here caught in great abundance, and at little cost. The calcareous matter would receive, and preserve for use as manure, the products of animal decomposition, and by the chemical action prevent all waste: and it seems probable also, that by the action of the animal products on the shells, (as they certainly combine chemically,) that the shells would be made more friable, and easily reduced, when put on the land. Mr. Eyre now has fish in compost beds of earth and vegetable substances: but these substances are very inferior to calcareous matter for the purpose of absorbing and retaining the products of animal decomposition. When fish are applied directly and without preparation as manure, it is the most wasteful of all the modes in which they are used. If properly used, the abundance and cheapness of this material for manure would make it of immense value to many farmers in Northampton.

It has been already stated that the renting of land is extensively practiced in this county—and it is still more general in Accomac, where the more minute divisions of land, (for Virginia,) the comparative scarcity of slave labor, and other existing circumstances, offer interesting subjects for inquiry and remark, which it is highly desirable should be presented to the public, by some of those who have the means. Large land-holders may, if it is desired, derive their entire income, with ease and with sufficient profit, from tenants. Though the terms of rent are only from year to year, changes are not frequent. Mr. John Eyre, of Northampton, has long had a large proportion of his lands in both these counties, in the hands of tenants. He told me that he had never denied a continuation of the possession to but one person. One held the same farm for 35 years, paying half the product as rent, and in that time increased the landlord's share from less than 40 barrels of corn, to more than 100. He did this in part by new clearings, and by using the means for manure which the location offered, and which the landlord aided in, and though not in his obligation, to his own profit as well as his tenant's. Another of his farms was held 28 years by one tenant, who then died, and was succeeded in the possession by his son. Such cases would seem to show that there is more attachment to rented land on the Eastern Shore, than is felt on our side of the Chesapeake for freehold inheritances on which the owners were born, and on which perhaps several generations of their ancestors were buried.

My conclusions as to the soil and culture of Northampton, are very different from the opinions which prevail among most of those who are equally strangers to them. It is not uncommon to hear the country spoken of as but little better than a mere sand bank, and the tillage as miserable as the soil. These of course are exaggerated expressions, and would be so admitted by those who

use them to express the contempt they really feel. It is possible that I may have erred as much on the other extreme. But my opinions are founded on reports of profits and prices, and of long continued products, and not upon the appearance of the land, or the growing crops, and still less upon any excellence of the implements or processes of tillage. The great merit seems to be, that though neither of these are such as would command admiration, or even attract notice, that all the parts are well suited to each other. If I had merely judged of the state of agriculture by what was presented to my view, and without knowing any thing else, I should have certainly formed a very unfavorable opinion of the soil, the rotation, and the profits and prospects of the cultivation.

A GLEANER.

July 17*th*, 1835.

USES AND CULTURE OF RUTA BAGA.

To the Editor of the Farmers' Register.

The Swedish turnip, or ruta baga, is a most valuable vegetable for all kinds of cattle. Some horses refuse it, but generally they are fond of it. When designed for horses, the roots should be well washed and chopped up—but for cows or hogs this is unnecessary. Indeed it is thought that cows thrive better upon the roots in their dirty state; and when given whole, they are not so likely to choke them. The teeth of sheep may be injured by roots in very dirty condition—but all these cattle eat more slowly and securely, I think, if the turnips are thrown to them in an undivided state. I used a turnip cutter when I first began to feed them, but discontinued it as troublesome and unnecessary.

The Swedish turnip, when first eaten by milch cows, gives the milk and butter a flavor something like that of garlic. This is not unpleasant to some persons, and becomes less obvious as the digestive organs of the cattle more perfectly assimilate the food. It may be obviated, however, by dissolving an ounce of saltpetre in a pint of water, and putting a table spoonful of the solution into each milk pan as the warm milk is emptied into it.

In the winter season, the butter from cows judiciously fed upon ruta baga, has the flavor and appearance of grass butter. Half a bushel per day, divided into three messes, is a fair allowance. I have sometimes fed a bushel and a half to each cow per diem. The vegetable is very grateful to the animal, which while eating it, requires little water to drink. I have known cows refuse to drink water for several weeks when freely fed on Swedish turnips. Straw, corn fodder, or coarse hay, is at the same time essential to enable them to chew the cud.

The skin remains slack, and the health more vigorous and decided, by the use of these turnips; and the amount of barn-yard manure is much increased. It is best to feed twice or thrice a day. In fattening cattle, Swedish turnips, sprinkled with corn meal, gives the meat a finer quality, juice and relish. It is also an economy where corn is high in price.

The ruta baga is generally thought to be a troublesome crop; and many relinquish its cultivation from the difficulty of its management, *when not thoroughly understood.* The ploughing or ridging, drilling, hand-hoeing, and care, are peculiar, and much unnecessary labor and pains often at first embarrass the cultivator. But when once well comprehended, the crop is usually estimated highly.

We generally plough up a barley, wheat, or rye stubble, immediately after harvest; then roll and harrow it well. If we have fine manure, (we often use street dirt and bones,) this is hauled out and spread, and the ridges (two furrows cast together) are ploughed at once. These are rolled flat, and the seed drilled upon the top of them with a machine (a turnip drill) contrived for the purpose; or a porter bottle with a quill fixed in the cork, having a hole of sufficient size in the small end of the quill. If the manure is long, and intractable, the ridges are ploughed first, the dung is then carted and spread between them, and the double furrows are afterwards split, so as to cover in completely the long manure. The seed is sown tolerably thick. When the plant has four leaves, the supernumeraries are cut out with hand-hoes, leaving the finest plants from six to twelve inches asunder. Eight inches is the average width between the plants—if they are allowed to stand thick, the crop is ruined, and no fear should be entertained to cut out freely.

Before hoeing, a light triangular harrow is run between the rows to level the earth, and clear the ground from weeds. An implement with a slide behind and hinges in the front, so that the width can be changed at pleasure, according to the growth, is most convenient.

A mistake is often made with the turnip crop, in *hilling up* the roots by plough or hoe. The earth, on the contrary, should always be taken from the turnip. Its tap root is quite sufficient for its nourishment, and the bulb grows larger as the earth is *drawn from* it. The calculation is to hoe and cultivate the ground until it is quite level, harrowing or horse-hoeing between the rows, and hand-hoeing between the growing turnips. We sometimes sow barley, wheat, or rye among the ruta baga for a permanent crop, and cover in the seed when we give the turnips the last dressing with the harrow or horse-hoe. I have seen very good crops of grain after the turnips, and 300 bushels of turnips per acre. In planting Swedes for seed, care should be had that no other plants of the same family be permitted to flower near them, or in the same garden. Other kinds of turnips, cabbage, and radishes, will change the character of the seed; and of course the quality of the roots will be subsequently altered from that of the original. A friend—G. H. Walker, of Hongford, Philadelphia County—who is exceedingly careful in all such matters, promises me to forward you some of the true breed, which you will do me a favor by distributing among our friends on James River, (especially to George E. Harrison and John A. Selden, his brother Miles D. Selden, and Hill Carter, Esqs.)

In your climate, except in very severe winters, like the last, you have the advantage of being able to leave the turnips in the field, to be pulled as they are wanted for use. Here we are obliged by the severity of the season, to pull and top them by the middle of November, and to hoard them away in cellars or caves, where they sometimes heat, and require much handling.

You can sow later than we do, for the plant is

one of a cold climate, and grows rapidly after the first frosts. I am, however, now (June 30,) eating ruta baga raised this spring in my garden by mistake; the seed being sown instead of Savoy cabbage. I find them very palatable.

This turnip bears something the character of the pippin apple, which increases in sweetness and flavor by being kept. When the Swedish turnip is first taken from the ground in autumn, it has a raw, or rank taste, when prepared for the table; but towards the middle of winter, it improves very much. It is now sought after in our markets, often selling for 50 cents per bushel, for the use of the table, in mid-winter and spring.

Its color is a fine rich looking yellow when boiled, and the only objection I know to it is, that during the process of cooking, it gives out an unsavory odor. This is of less importance when the kitchens are separated from the dwelling house.

J. H. GIBBON.

Philadelphia County, 2nd July, 1835.

A REJOINDER TO MR. JOHN A. SELDEN'S DEFENCE OF THE NEW FOUR-FIELD SYSTEM.

To the Editor of the Farmers' Register.

Brandon, July 2d, 1835.

It was alike foreign from my intention and wish to appear again in the Farmers' Register on the subject of the new four-field system. Nor from this course would I now deviate, but for some remarks to be found in a communication from the pen of my worthy friend, Mr. John A. Selden of Westover, (which made its appearance in the regular number of the Register for the last month,) that seem to require some notice from me, however cursory, in justification of myself. At the same time I shall endeavor to show that some of the objections to this system are not altogether so trivial, and without foundation, as my friend would fain make appear in his elaborate defence of his favorite system. Still I cannot, and will not deny, that it possesses some great advantages; sufficiently great, perhaps, more than to counterbalance, in the opinions of many, the objections that may be fairly urged against it, allowing them their full weight. My confidence in my own opinions, on any subject, certainly has not increased as my life advances, and it is well known to me that some things succeed much better in practice than could be expected from an abstract consideration of all the arguments *pro* and *con*. Nor must it be forgotten, that this system comes strongly recommended to us by two of the most skilful cultivators of the soil in eastern Virginia, my friends of Shirley and Westover.

My friend Mr. S. says that I charged him with imprudence in recommending his system; and surely this is rather a hasty assumption, as any body may see (page 464, Vol. II. of the Register) by referring to the passage from which he infers the charge. I there state the difficulties to be overcome by each individual, in fixing on the best system; and then ask, if it is not imprudent to recommend any system for universal adoption? I then endeavor to show that no system can be suited to all situations and all soils; but that the rotation must be varied to suit the peculiar circumstances of each case. Now Mr. S. must have meant to recommend his system universally, or not; and as such was not his intention, the remark cannot apply to him; and if he had intended it (which he tells us he did not,) the truth of the remark must be evident to all. Besides, the proposition is general, and applies with equal force to all systems; and there is undeniably a great difference between this and the naked affirmation that Mr. S. had been guilty of imprudence. I even gave the example of Arator's four-field system, than which I know of no one more susceptible of profitable general adoption, to show that even that system will not answer in every case.

After commending the four-field system of Arator in deservedly high terms, Mr. S. descants on the frailty of human nature, which has prevented the more general adoption of it; and the passage in question might perhaps be misconstrued by one who did not know him, into a charge of unworthy motives against those who have had the temerity to disapprove of his favorite system. I am unwilling, however, to believe that such was his intention. When Mr. S. denounced in the strongest terms the disastrous three-field system (as he called it,) he surely must have expected that those who practice and approve that system, would say what they could in its favor. The wonder was not that I at length took up my pen in its defence, but that I had not long before been saved the trouble by some one of the many whose opinions coincide with mine, and who are so much better qualified to do justice to the subject.

My friend asks, if it is generous and consistent to adopt a system and then denounce it? Now I mentioned that I had adopted this system on a farm that had become foul under a lenient course of management, and that I did not expect to continue it longer than for a single round of crops. Surely the most scourging system might be resorted to for the purpose of cleansing foul land, and would, doubtless, be found the most efficacious. I said too, that I had a light field, exclusively devoted to corn, which furnishes a sufficient hoe crop; thereby removing an important objection to the system. If all this had been stated by Mr. S. his question would have been sufficiently answered without a single additional word from me. There are, however, other strong reasons why this system might answer on the farm in question, and not generally on lands bordering on the river. In the first place, this farm is better naturally, than the ordinary river land, though, perhaps, inferior to some favored spots; better for instance than an adjoining farm which I cultivate in three-fields. I believe too, that it is known to Mr. S. that I use lime quite extensively, by the means of which the crop of clover is ensured, and the land otherwise improved. Besides all this, the teams from the adjoining farm (cultivated in three-fields) aid in preparing the fallowed land, giving me a double force for that purpose. Surely these might be considered sufficient reasons, even for continuing this system here, when at the same time it might be thought too severe and too expensive for general adoption on the river. It must be recollected too, that my hostility to the system is not utterly uncompromising. On the contrary, I admitted that, under certain circumstances, I might myself pursue it. Allow me here to add, that I will endeavor to give this system a fair trial, and if it should fulfil any thing like the promise Mr. S. makes for it, shall certainly not be so blind-

ed to my own interest, by pride of opinion, as not to persevere in it—or to the interest of others, as not to recommend it to them.

In arguing against the general adoption of this system, it must not be overlooked that so enlightened and so judicious a gentleman as Mr. John Wickham, on land too, of much better than ordinary quality, should, after having tried, condemn it. As much as his opinions are worth on all subjects, they seem to me to be at least doubled in value, when founded on experience.

Mr. S. thinks the number of horses or mules, necessary to cultivate a farm in three or four fields, equal; and states the number at 12 for 400 acres. This puts the subject in somewhat a tangible shape. In the latter part of his communication too, he gives the force employed in cultivating the Curle's estate in four fields, and states the number at 40 mules and 50 hands.

Now I leave it to all the gentlemen who practise the three-field system, to say, whether there is a single instance known to any one of them, in which, on a well managed farm under that system, the number of horses or mules is so great in proportion to the arable surface in the one case, or to the number of laborers in the other.

Perhaps I might be excused for having presumed on the authority of Mr. S. that a much larger number than 12 for 400 acres, is necessary under the new system; for in his first communication (in page 323 Vol. I. of the Register,) he tells us that he then worked at Westover, 11 horses, 14 hands, some inefficient ones among them, and but few oxen; and that these numbers should be nearly doubled to give a just exhibition of the four-field system. Now Westover contains 400 acres of arable land. Let me not, however, be understood as disapproving of an adequate team; but eight to a farm of 400 acres, under the three-field system, I should consider an ample allowance—more I am sure than are generally found on a farm of that extent.

It is difficult to imagine, when the proportion of horses and hands is as 40 to 50, that there will not be a good many of the former idle at many seasons of the year, when manual labor is required to be performed. Mr. S. says that under the three-field system, the horses are idle from the time the crop of corn is laid by till seed time; and elsewhere tells us that this is the critical time to plough under clover to improve the land, and also urges as an objection to the three-field system, that the corn land can very rarely be broken up in time. Now can any thing be imagined more easy than to give these idle animals employment by turning in a heavy growth of clover for corn; thereby avoiding all danger from the worm the ensuing spring, obviating at the same time, the objection to the three-field system, urged by Mr. S.; and by diminishing the labor to be performed the next winter, more time will then be afforded for collecting materials for manure. There are unquestionably some farms under this system, on which clover is grown to considerable extent without being depastured; and allow me to add, that the farm cultivated by me in three-fields, affords at this time ample evidence of the fact. There can be no reason why it should not succeed under this system on all land able to produce it; nor why it should be grazed off sooner than under any other system. If it were impracticable, or even difficult to succeed with the clover husbandry under the three-field course, I should be one of the first to abandon it; for I am endeavoring to improve my land extensively by the use of that valuable grass. Mr. S. says that the best clover does not grow on the best land. My best has certainly grown after lime and manure. Indeed, without the previous use of lime, the clover hardly pays me for the seeding; but in a few years we hope to have the whole arable surface here improved in that way, having already more than half accomplished it.

There is one argument in favor of the four-field system, which seems to have been overlooked by its advocates, and which it may not be amiss to advert to in this place. The scantiness of the second crop of wheat in the rotation is very favorable to clover, by sheltering the young plants without endangering their existence by suffocation, as is sometimes the case when the crop is heavy. In this point of view, I must acknowledge its decided superiority over the three-field system. If the crop of corn, succeeding wheat, made on a clover fallow, is as much benefited by the decayed grass, as Mr. S. contends, why would not wheat after corn, made on clover, (as under the three-field system) receive equal benefit?

Mr. S. labors to prove the superiority of wheat, as a crop, over corn. Whether he has succeeded, it must be for others to determine, and experience will be their best guide. It is certain that many of my notions are erroneous, and I am far from wishing that any opinion of mine should be practically adopted by a single individual, unless sanctioned and confirmed by his own experience and observation. With me, the crop of corn, estimating what is consumed at home at the price the remainder sells for, has been much the most profitable, and far more certain, however more variable the price may be. In the last two years, for instance, the gross crop of corn has been much the most valuable, although made on less land, after deducting $360 for *shorts*, each year. I will add that the quantity delivered this year exceeded the delivery of any previous year by 180 bbls. and that the moiety of it was sold from the farm under the abominable three-field system, although no more expense was incurred for shorts than for the last five years.

Admitting that as much corn can be made per acre under this, as under the three-field system, and that no more would be consumed, (and I am as far as ever from admitting either proposition—) as there would be one-fourth less land cultivated in corn, the gross crop would be diminished one-fourth, and as one-half of all made under the best management is usually consumed at home (even under the three-field system,) the quantity for sale would, of course, be reduced one-half.

On good corn lands that crop is not unfrequently the most profitable when shortest, (paradoxical as it may appear;) and the reverse of this is generally true with regard to the wheat crop. The reason is that the demand for the former is local, and the price is accordingly more affected by a partial failure.

Mr. S. rates his loss from shocking out his corn one year at nearly a sixth of the whole. Now we are in the habit of putting all our corn in shocks, in order to expedite the seeding of wheat, and a portion of it frequently remains out till January, and yet we have never sustained any considerable

loss from the practice that I know of; and I can in no wise account for so great a loss, but by supposing some defect in the corn itself. When the corn is perfectly made, and not prematurely cut down, I am confident that my loss does not exceed two per cent. from exposure in the shocks.

We are told that land which will produce four barrels of corn, may be relied on to give twenty bushels of wheat on good clover fallow, well prepared, and seeded; and that 25 or 30 bushels may be expected under like circumstances, from such as will yield eight barrels per acre. In this part of the state, my opinion is that land that would bring four barrels of corn, will not generally, without the use of calcareous manures, bring good clover at all. It might be asked, too, if the land be equally well adapted to both crops, why the ratio of increase is not more nearly equal? I have always thought that there is no land, except perhaps pipe clay, to be found in this part of Virginia, that will yield as many bushels of wheat as of corn, which Mr. S's. first proposition assumes.

Under the four-field system there is only one-ninth more in cultivation than under the three, and admitting that the crops are equally heavy, (which is going far enough in all conscience,) there would be only one-ninth more offal to convert into manure. What becomes then of the superiority of the new system in this respect? For if there is one-ninth more manure made and applied, there is also one-ninth more land in cultivation, and that ninth is moreover deprived of the advantage of clover. I am willing to admit that the manure made from wheat straw is somewhat superior to that produced from the offal of corn.

The crop of corn made by Mr. S.'s predecessor at Westover, was but seven barrels per acre, though with very imperfect cultivation. Only a small part of the crop followed clover, as that gentleman informs me, and of course any calculation, based on the supposition that the whole had that advantage, can prove nothing.

Does Mr. S. regard as inconsiderable the expense incurred annually by wheat growers in seed? If I were at all happy at numbers, it would give me pleasure to calculate, as nearly as possible, the cost to the state of Virginia every year of this single article. It must be a pretty round sum, as one-tenth or more of all the wheat made in the state is reserved for the purpose; and from the noise made about the tythes in Great Britain, this would seem to be something considerable.

As I have crossed the Atlantic, I will now try to fortify the objection against the new system, derived from the universal practice of the best English farmers, which Mr. S. regards so lightly. He tells us that he does not read books on English agriculture, but knows there may be a great difference between the soil and climate there and here. This no one will deny, but I take it, the difference is decidedly against us, except that we can here cultivate that noble plant Indian corn, about the value of which Mr. S. and I seem to differ so widely. The climate there is very humid, and is accordingly admirably suited to grass, as well as small grain, which is partially protected from many casualties, to which it is liable here, by the coolness and equability of the temperature. In such a climate, one would suppose that severer culture might be admissible, than in a comparatively arid and variable one like ours. Allow me to advert, too, to the great abundance of lime and other manures, foreign and domestic, which are used there, and to the skill with which they are applied. Now if in such a country, with an overflowing population, where land is high and rents of course correspondingly so, labor is very low, and produce hardly ever fails to command a good price; three grain crops in succession are found to make too great a draught upon the fertility of the soil to be profitable; it would seem to follow *a fortiori* that they cannot answer here—where the reverse of all this is true. It is considered there an established rule, founded on long experience and profound observation, that the more rarely any crop occurs in a rotation, the heavier it will be found to be; and the reason is, that the specific food of the plants constituting the crop, will there be found in sufficient quantities in the soil to nourish them to perfection.

In answering this objection, my friend Mr. S. says that the corn crop, a summer and hoe crop, intervening between the two crops of wheat, prepares the earth with a pabulum the better suited to the last crop of wheat. I can very readily conceive that the corn crop will diminish the pabulum that the succeeding crop of wheat ought to find in the soil; but can in no way discover how it can add to the quantity, until the plants themselves revert to the earth in the shape of manure.

Mr. S. accuses me of inconsistency for approving the five-field system, and objecting to the new system, that it gives too little corn for sale. With regard to the farm on which I practised this system myself, I always had a sufficient corn crop; having a light field cultivated altogether in corn. We have, too, a large marsh, which answers for a standing pasture. As for my recommendation of it to others, it was only conditional, (as any body may see by referring to the passage,) viz: when the fallow system has already been determined upon; and I assigned as a reason why I should prefer it to the new system, that, as at least one-fifth of the farm would be required as a standing pasture, the same surface would be in cultivation, and the worst feature of the new system, the three successive grain crops, would be avoided. I never thought, and no where said that it was free from all the objections that may be urged against the new system. Indeed the fair inference from what I did say is, that I considered both systems liable to the same objections, with the very important exception above mentioned.

It is a little remarkable that Mr. S. in his account of the improvement at Woods' farm, (in page 324 Vol. I, of the Register,) where the crop was astonishingly increased, should inform us that this great improvement was effected without a standing pasture, and the cattle, of course, deriving their sustenance from the clover field, (as he expressly says,) and only one-fourth of the farm in clover; and should yet think it other than an improving system to have two-fifths in clover, with no greater disadvantage on the score of pasture land, and without the excessive draught upon the soil from three successive grain crops. In other words, Mr. S. would seem to think it better (other things being equal, for there is no standing pasture in either case,) to have one-fourth than two-fifths in clover, and three-fourths than three-fifths in cultivation, on the score of improvement.

The crops of wheat made by Mr. S. at Westover, have been certainly very flattering; but in accounting for them, he seems to me to overrate the merits of the system, and to underrate the natural fertility of his land, and his own excellent management, which would doubtless insure success under any system. As these crops have been produced as evidence of the excellence of the new system, it seems that the following remarks are certainly pertinent, and perhaps necessary to a proper understanding of the subject.

The crop of wheat made by Mr. S.'s predecessor at Westover, is by no means to be considered as a fair criterion of the productiveness of the land; for, as that gentleman informs me, it was all sown after the 10th of November, (the period assigned by Mr. S. and all other good farmers, as the proper one for finishing that operation in this climate,) by the force from another estate, where a full crop had been previously sown; and in addition to this, the season was extremely unpropitious for wheat—the crops in this neck being of such inferior quality, as to require a deduction from the price originally agreed on. Mr. S. is mistaken, too, (unintentionally I am perfectly sure,) in regard to the amount of that crop, which was larger than stated by Mr. S., and produced from less land; a portion of the former having been reserved, and removed elsewhere for seed, without the knowledge, it is presumed, of Mr. S.'s informant, and twenty acres of excellent land (as nearly as it could be estimated,) having been left out, in consequence of the advanced state of the season; it being then about the middle of December. These facts I have from Mr. S.'s predecessor.

As far back as 1816, 3100 bushels of wheat and 600 barrels of corn were made at Westover by my kinsman, Benjamin Harrison, Esq. of Berkley, after the estate had been long subjected to the most exhausting course. If I mistake not, and if I do I hope to be put right, Mr. S.'s own great crop of 3000 bushels from 100 acres, was made on land on which he had put little or no other improvement than clover and plaster, and what was obtained by a masterly preparation for the crop. By a reference to his exhibit of his crops, (see page 322 Vol. I, of the Register,) and to what follows, it will be seen that this field was never cultivated by him in corn till 1833; and as he tells us he applies nearly all his manure for corn, it is to be inferred, that this field at that time (1832) had received little or no manure. I wish if any one of your subscribers has the good fortune to cultivate as fine land in three fields, that he would furnish the data which Mr. S. complains so much that he wants. I cannot help thinking, if he is a good manager, that his exhibit will show more than 5 barrels of corn, and 12 bushels of wheat per acre.

I never for a moment supposed that Mr. S. was acquainted with the fact that Mr. Harding was the first to practise the new system, when he attributed the honor of having introduced it to Mr. James Selden. On the contrary, I am quite certain that Mr. James Selden adopted it himself, without any previous knowledge of the fact. Mr. S. says that Mr. H. kept at Dover as many as 50 or 60 cows, and derived a considerable part of his profits from stock: and if so, the exhausted condition in which he left the estate, is certainly not fairly chargeable upon the four-field system. Mr. S. says too, that Mr. H. improved very highly the farm to which he removed, and where he continued to practice that system till his death. I can only say in reply, that all his neighbors were not unanimous in regard to that improvement.

By way of illustrating the advantages of this system, my friend Mr. S. refers triumphantly to the result of the last year's cropping at Curle's. It is to be regretted that it had not suited his purpose equally well to give us the average sales from the estate, since it was purchased by the late Col. Wm. Allen, instead of referring to the results of the last year's crop, which greatly exceeded an average, and can of course prove nothing. If I mistake not, the crop of wheat of the last year exceeded, by at least a fourth or more, the average crop made on the estate since the purchase; and if so, (if I am wrong I hope to be corrected,) and if even then the crop was only 13 bushels per acre, as Mr. S. has informed us in the number of the Register for November last—this deduction of one-fourth, would, you perceive, reduce the average per acre to a very moderate one for uncommonly fine land.

It happens that an estate adjoining me was offered in even exchange for Curle's a few years ago, and the offer refused by Col. A. It would give me pleasure to present a comparative estimate of the crops made on this and that estate for the last, and several previous years; but I am prevented from doing so by the repugnance expressed by the proprietor, to such an obtrusion of his private concerns before the public.* Without entering into minute details, I will, however, take it upon myself to say, that the sales from this estate, for two out of the last three years, have exceeded the largest sum assigned by Mr. S. to Curle's, for the last very favorable year. It is proper to observe, that this estate has the aid of a small grist mill, and usually about $400 worth of wheat offal, but never more; but these advantages, it is believed, are more than counterbalanced by the pork raised and fattened on the estate, (none of which it appears is raised at Curle's,) by the support of a large and expensive establishment, and of a black population, the extent and inefficient character of which may be inferred from the fact of their being, at the last enumeration, 50 children under the working age. The despised corn crop of the last year, has, with the above aids, after supplying the heavy demands upon it, furnished a surplus for sale of more than 1500 barrels. On this estate, which is under an irregular but very improving course of cultivation, some fallowing is done, more than a fourth of the land is suffered to rest, and corn is largely aimed at as a sale crop. There are

*It is strange that any such statement as is here referred to, and which every reader would agree with our correspondent in deeming interesting and useful, should be considered as an "obtrusion of private concerns" on the public notice. If such was the view taken by all of those who are, or may be, contributors to this journal, it would soon lose its most valuable features. There would be presented no more authenticated facts and practical proofs—and the want of these could not be compensated by mere general and intangible statements and theoretical views, no matter how true, and though as ably maintained as so unsatisfactory a course would permit.—Ed. Farm. Reg.

more hands (I do not know that the physical force is greater,) and fewer horses than at Curle's, and great use is made of that valuable animal the ox.

Mr. S. says that from $1000 to $3000 worth of corn has been regularly sold from Curle's each year. Now when we consider the extent and fertility of that fine estate, and that all the pork used upon it is purchased, this is astonishingly little to be derived from that crop.

In conclusion I must say that, although on the very best lands, and with the very best management, the new system may answer very well, and I cannot doubt that it will; yet on ordinary land, with ordinary management, I am very far from thinking that it will ever be found to succeed. If I have not been misinformed, I believe that you, sir, have tried this system, and I am sure that many of your subscribers, myself among the number, will be both edified and gratified, if you will afford us the light, which you are so well qualified, by experience and otherwise, to throw upon the subject.*

I will now remark, that it has been my object to discuss this subject fairly and freely, but without saying a single word otherwise than respectful and kind; and I hope that my friend Mr. S. will receive what I have written in the same spirit of perfect kindness and good will, in which it emanates from me.

WM. B. HARRISON.

From the New York Farmer.

HOPS.

The opinions of intelligent and practical men, or rather the results of their own actual experiments, are of great value. This applies particularly to small farmers, whose operations, being on a limited scale, receive their immediate personal attention. In looking at such results, however; those who farm on a large scale are liable to be led into error in expecting that the same will follow an extended cultivation, forgetting that the success is in many cases mainly to be ascribed to this minute personal attention, stimulated and strengthened by self-interest. In extended concerns, that attention cannot always be given; and as much hired labor is employed, the powerful motives of interest do not operate. The large and enterprising farmer, therefore, must take this into consideration; as his concerns extend themselves, his risks are multiplied; and if the results of his cultivation are not proportionately correspondent to those of the small farmer, he must often place it to the account of circumstances absolutely beyond his control. Nothing valuable in this world is accomplished without perseverance, labor, fidelity, and attention. This is one of the wise provisions in the constitution of things; one of the benificent laws of a righteous Providence. On the other hand, labor, perseverance, fidelity, and attention, seldom fail, in ordinary circumstances, of reasonable success. The business of the farmer particularly demands his attention, and his ill fortune may be but too often traced to neglect, to this want of personal attention, to the division of his care among other pursuits, or to a miscalculation in extending his operations beyond his power of immediate and careful superintendence. These remarks often occur to me in my visits among our small farmers, with whom I have been much in the habit of familiar, agreeable, and instructive intercourse; whose affairs are managed under their own immediate and constant personal attention, and among whom I often meet, with the highest pleasure, with examples in a small way of eminent success. I have been long accustomed to note the observations of such men, and to gather and record any facts which they have been kind enough to communicate, where I knew I could rely upon the correctness of their statements. I now send you some information, obtained in this way, in relation to the cultivation of hops by two farmers, who cultivate a small farm in partnership, in a town in Vermont, on the Connecticut river.

Messrs. D. & H., in 1833, from four acres obtained 3000 pounds, which sold for 20 cents per pound. In 1834, from five and one-half acres they obtained 4000 pounds, which sold for 15 cents per pound. In 1833 they judged that their land, after deducting all expenses, yielded an income of $100 per acre.

Hops are planted eight feet apart in hills. The cuttings are planted, and Indian corn is cultivated among them the first year, about half as thick as when planted by itself. The corn and hops are hoed at the same time. The second year the hops are polled and a crop gathered.

Green barn manure is thought to be injurious to the vines. Fall manure, or compost, is deemed best. The hills are opened in the spring; the vines are then trimmed, the ground loosened, and the manure applied to the hill. The field must be kept clean of weeds. The hops are gathered by hand. Women are employed in the picking at 20 cents per day. They require to be kiln-dried immediately, as they are very liable to be injured by heating in the heap. From 45 to 75 lbs. are kiln-dried at a time, and the process of drying occupies about 12 hours. After drying they are put into a heap and suffered to sweat a little, and then conveyed to be packed and bagged, which is done by a screw press. They are packed and screwed for about $5 per ton, and are then sent to market without delay. The manner and condition in which they are put up is of the greatest importance, for if the inspector discovers, on trying the bag, the whole bag is condemned. Spruce poles for hops, about 15 feet high, cost here one cent apiece. Messrs. D. & H. gave 25 cents per one

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*Our personal experience of the new four-shift system is so limited, and the all important part of it, the fallow process, has been so imperfectly executed, that our practice would be worse than worthless, as affording an example for imitation. But they who have committed the greatest errors may be at least trusted to point them out for the avoidance of others—and in that manner only can the results of our experience be of any value. But as imperfect as may be our views on this interesting subject, as they have been called for, they shall be presented at some early time—upon the ground that we hold every reader of, and contributor to this journal to be bound to answer, so far as may be in his power, such inquiries as may be addressed to him by any other reader and contributor.—Ed. Farm. Reg.

hundred and cut them for themselves. They will set this year about 4400.

The market price of hops is very fluctuating, and the risk of curing them well is very considerable, and requires great experience and care. The ordinary yield per acre I am not able to state, as it varies greatly. In some parts of this state they are extensively cultivated; and on land, which, without great attention, would make very small returns. A farmer in Boxborough, Mass., recently from five acres of land gathered 10,000 pounds; and I have been credibly informed that a farmer on the river, about 12 miles above this, the year before the last, received from twelve to fourteen hundred dollars from the sale of his crop of hops. The cultivation, I am persuaded, might be extended to great advantage, as there is little fear that the market will be over supplied. It must not be forgotten, however, that the quality and condition of the article, when sent to market, is of the first importance. Good hops will always command a fair price. Damaged or ill-conditioned hops are worthless.

H. C.

Meadowbanks, May, 1835.

From the Massachusetts Agricultural Repository.

PEACH TREES.

Mr. William Phillips, of Pennsylvania, has derived great benefit from the application of air slacked, old effete lime to peach trees, the effects of which, according to his own account, have been very great. He puts about a peck of lime to each tree; he thinks it useful as a preservative against the insect so fatal to these trees. We have then two applications recommended, unleached ashes and lime, and from our own experience are able to recommend both. We are not sure which has the preference. The lime and ashes should both be dug up every spring. A friend suggests that he killed his young peach trees by lime; caution is needed in the application.

From the Southern Agriculturist.

GENERAL OBSERVATIONS ON THE OLIVE, ORANGE AND DATE TREES GROWING IN GEORGIA—RUTA BAGA TURNIP AS A SECOND CROP AFTER CORN.

St. Simon's, (Georgia,) June 17, 1835.

I am unable to excuse myself for not sooner replying to your esteemed letter of the 15th of January. I did intend writing you something on such matters, as had come under my observation, particularly respecting the olive, orange, and dates. The frost of February has destroyed those trees, leaving nothing but stumps and wrecks behind. I shall, however, still make some observations:—

I had a very pretty grove of 200 olives, imported about 10 years since, their stems from 8 to 12 inches diameter, and, perhaps, averaging 20 to 25 feet high to the top; they have borne fruit for some years. I had also near 600 trees, or plants, from 11 to 5 years old. From comparisons between the olive and orange, in previous severe frosts, where the orange was much hurt, the olive was uninjured. I have, therefore, no hesitation in believing the olive is well adapted to, and will succeed on our sea-coast, of both Carolina and Georgia.

I have been personally acquainted with sour-orange trees, both on St. Simon's and Jekyl, for 58 years, and believe they were planted near 100 years since; and have never been killed by frost until last February, when they were all destroyed. I therefore, conclude, that since the first settlement of Georgia, the olive would have succeeded. It occurs to me, that notwithstanding the present immense value of the olive in France, they have been cut down in some severe frosts.

The olive and orange seemed so completely destroyed, even to some depth under ground, that I cut them down, and planted corn in their place; on examination about a month since, the lower roots still appeared fresh, I concluded that opening the ground around them might encourage vegetation; and have now the satisfaction to see the olives pushing out abundance of fine strong shoots, not one failing. The oranges are doing the same, though some appear dead, not yet decided; by returning the earth to the olive shoots, they will throw out roots, and furnish fine plants. In fact, I am better satisfied respecting the success of the olive than I was before the severe frost.

I had little hopes of any date trees surviving—some appear certainly gone, others are sprouting from the roots, some from the tops; a few put out blossoms—so I close the list of my misfortunes in that way.

I like to have some hobby in the agricultural line—my present is, raising ruta baga, a double crop after corn. In prudence I should wait another year's experience, but as the season advances, I shall relate what I do know. Every horticulturist in the southern states must have his mortification, after preparing land, to find his seed bad; indeed, he is quite an honest seedsman, that only mixes three-fourths of bad, to one of good seed. I have seldom ever been so fortunate. Accident threw in my way an advertisement of *William Cobbett, No.* 11, *Boltcourt, Fleet-Street, London*, offering warranted seeds for sale, of his own raising, particularly ruta baga seed, warranted, at the following rates, if 25wt. price 9d. str. per pound, if 50wt. 8d., if 100wt. 6d. I got some of his seeds last year, all good; and have some arrived this year. These particulars I mention for the benefit of those who may attempt the culture of turnips or other articles.

Mr. Cobbett sends his seeds to any place (cash first paid;) mine were sent to Liverpool, expense trifling, and there put up in an air-tight tin canister, sufficient to hold half barrel of flour, expense 5s. 11d. But to the turnips.

My corn, as usual, in rows five feet apart, land well ploughed in the spring by oxen, and entirely attended during summer by a small cultivator harrow of three teeth, and a light mule—no bed to the corn. In all August and September, say to the 15th of September, I consider the season in our sea-islands—the corn was stript of their leaves, and tops cut, a furrow was drawn between the rows with a shovel plough, and two bushel baskets of manure, dropt into each task row; a furrow on each side with a bar-share, covered the manure, and made a small bed; the top being levelled with a hoe, draw a small trench, two inches wide, one

deep, and therein, at every 10 inches, drop five or six seeds.

Such particular and good directions are given in William Cobbett's Year in America, also inserted in the Baltimore American Farmer, 1st volume, that I refer to it; as soon as convenient pull up the corn-stalks, and throw the earth on each side to the turnip bed; the rows will of course be five feet apart, but where land is plenty, this is an advantage. If there was no corn I should not plant ruta baga at a less distance than four feet. The following spring plant corn in the turnip bed; it will receive the benefit of the manure. I am convinced land this way will be much improved and produce double crops; the last crop (turnips) more valuable than the corn.

I planted eight acres this way last year; the season was dry, and my people awkward; the seed though good, came up badly, from drought and bad planting; my ruta baga being exhausted I filled up with Norfolk turnip; crop hardly set till late in September. Turnips, as Cobbett says, are poor watery things, compared with ruta baga, and so they are; yet, quite beneficial to cattle fed on dry food. Most of my field consisted of Norfolk turnip, and I commenced on them, reserving the ruta baga till the last, having many oxen; I regularly fed, during December and January, 30 bushels of turnips per day, chopped up raw, and found much advantage.

My allowance of ruta baga, was five bushels per day, which was boiled, for experiment. I fed two horses one month thereon, without grain, only rice-straw; I never saw horses thrive better. Some sheep were fed on boiled ruta baga, raw Norfolk turnip and cotton seed; I never saw fatter mutton. Poultry requires no better food. My negroes had free access to the turnip patch. I preferred the ruta baga; seldom eating a meal without a plenty. When the frost happened in February, the Norfolk turnip was entirely destroyed, and though the ruta baga were frozen, after being thawed, they remained good. My present crop of corn, planted in the last year's turnip beds, looks very well.

I am respectfully, dear sir,

Your most obedient servant,

JOHN COUPER.

From the Southern Agriculturist

OBSERVATIONS ON THE STINK-WEED, (CASSIA OCCIDENTALIS) RECENTLY TERMED THE FLORIDA COFFEE.

St. Helena, June 15, 1835.

Dear Sir—In the last number of the *Southern Agriculturist*, I see a short article upon the Florida coffee. The writer is perfectly correct in saying that it is nothing more than a useless weed, which grows here abundantly, but he has mistaken the name, supposing him to have purchased the same kind of seed that I did. He calls it the horse indigo, *(Babtisia tinctoria,)* the *Sophora tinctoria* of Linnæus. This plant is delineated in Prof. Rafinesque's Medical Flora. The plant which I have hatched on the contrary, is the *Cassia occidentalis*, or Styptic-weed, or as it is very significantly termed in a note to the communication, stink-weed. It grows more abundantly in the town of Beaufort, than any other locality with which I am acquainted. It may be that Florida beats it in this respect, but if they can send all their seed elsewhere, they will be getting rid of a nuisance, and make a handsome profit into the bargain, if the seed maintains its original price. So great was its abundance in the vacant lots in the town of Beaufort, and so offensive its smell, that the inhabitants of that town, in the year 1817, when the bilious fever prevailed to an alarming and deadly extent, conceived the impression that the cause might be owing to this loathsome weed, or at least contributed to by it. They, therefore, had them cut up in all parts of the town, but unfortunately neglected removing them. The consequence was, that they became still more offensive. Since then, they have every year cut them down when working the streets, and "thrown them like the loathsome weed away." It is frequently used there as a styptic to fresh cuts, and I have been informed is considered useful for that purpose, but never having tried it myself, cannot say what its properties are in this respect.

I saw some of the prepared coffee in its powdered or ground state, and it had the appearance and the smell of coffee, but not its peculiar aroma. Indeed, there are a thousand things which when charred and ground, will deceive many persons. The rye thus prepared is used extensively in the northern states, in the interior, that with long sweetening (molasses) in contradistinction to short, (sugar) forms the principal morning beverage. In Germany, Chiccory is used either alone or combined with coffee, and this not at all confined to the poorer classes, but by many who consider it as giving an additional flavor to the coffee. So, also, in many parts, the roots of the Dandilion, *(Leontodon taraxacum)* is prepared and used in like manner. Indeed, as they are now applying India rubber to so many purposes, I would not be at all surprised if some one should advertise Caoutchouc coffee, as it has already been converted into bread, it can certainly be burnt into an imitation or substitute for coffee; and the same may be said of dealboards, to all those who may choose to deal in such substitutes, when the *genu-ine* article, as our northern brethern can assure us, can be procured at a much cheaper rate.

Respectfully, yours,

CHARLES WM. CAPERS, M. D.

From the Southern Agriculturist.

IRRIGATION OF GARDENS.

"In the south of Spain, no garden is formed but in a situation where it can be irrigated; and the water for this purpose is drawn from deep wells by what is called a noria, viz., a kind of water wheel, which is described and figured in *Loudon's Encyc. of Agr.* The ground is laid out in small squares, separated by channels for conveying the water. Each square is a level panel, sunk a few inches below the water channel; and at one angle of each panel is a small opening in its bank or border for the admission of the water. On the margin of the squares, garlic is commonly planted. The olive is raised from truncheons of 8 feet to 10 feet in length, and from two inches to three inches in diameter. They are sunk about four feet or five feet into the ground; and the part of the truncheon above ground is covered, during the first summer, with a cone of earth or clay, to the height of from

two feet to three feet, doubtless to prevent the sun from drying up the sap of the truncheon. Vines, in some places, are trained with single stems to the height of two feet or three feet, and then allowed to branch out like gooseberry bushes; they are manured with recent stable dung when it can be got, and the fruit is never found to be injured by it."—*Busby's Journal.*

Colonel Pinckney's house in Pendleton, is at the top of a hill, of about 70 feet elevation, and is at 800 feet, measured superficially, from a spring, which gushes out at the foot of the hill. The rivulet, or as we call it, springbranch, falls over one or two rocks at a little distance, but as the quantity of water is small, it is kept back by a little dam furnished with a floodgate self-acting, by means of a float, which lifts the gate as soon as a sufficient head of water is accumulated to act advantageously. The water falls upon a small wheel which sets in operation Hubbard's patent forcing pump; and the spring water is carried through leaden pipes, 18 inches under ground to the top of the hill, and is discharged in the kitchen; from which the surplus is conducted, by proper channels, from level to level, through the garden, on the hill side.

This example ought to be contageous, the only doubt of its utility lies in the use of leaden pipes; the proprietor considers the constant use of them as a sufficient security against the poisonous influence of the lead, but we know that lately objections have been made to the salubrity of the water conducted into the town of Mobile, through leaden pipes, notwithstanding their constant use; and the Messrs. Fabers, with several workmen, at their country seat, on Pon Pon river, have just recovered from very formidable and repeated spasmodic attacks, brought on by the use of water forced by one of these ingenious contrivances, through leaden pipes from their spring into their buildings. The use of wooden pipes or small iron castings would be free from any risk.

The precautions taken to supply abundant moisture to the cuttings of olive, show the cause of the failure to propagate the olive by cuttings in this country. In this city and at Mr. John Couper's, on St. Simon's Island, cuttings have been made to germinate, but after putting forth, the leaves perish and the cuttings become a dry stick under our sun. It is far easier for us to propagate the olive by seedlings, according to Mr. Mey's practice, described in the 6th vol. page 308, and confirmed in page 250, and in vol. 3, page 230 of the Southern Agriculturist—*Conductor of Southern Agriculturist.*

From the Ohio Farmer.

PROTECTION TO SHEEP.

Clarke Co., Ky. May 19, 1835.

It is known to those who have tried the experiment, that sheep put into the same enclosure with cattle that are in good order or cows having with them young calves, are completely protected by them, from the attacks of dogs; and I believe they would also be protected from the attacks of wolves, though of this last I have no experience, the wolves having been exterminated from this section long since.

These remarks are made in reference to the large breed of cattle we have in this county; but it is believed that any cattle that are tolerably fat, will show the same dislike to the dog.

S. D. MARTIN.

From the Petersburg Intelligencer.

MATOACA MANUFACTURING COMPANY.

We had the pleasure, a few days since, of visiting the works of this company, situated on the north bank of the Appomattox about four miles from Petersburg, and were no less gratified by the beauty and substantial appearance of the buildings than surprised at the expedition with which they have been erected. They consist of two cotton mills, three stories high, a machine shop and sizing house, built of granite of a superior quality, obtained from a quarry on the company's land. The principal mill is 118 feet long by 44 feet wide; the other 90 feet long by 40 feet wide. They will contain about 4000 spindles and 170 looms, a large portion of which have been set up and ready for use.

In addition to these buildings, the company have erected a granite house for a store, and fifteen or twenty frame tenements, as residences for the workmen, each to contain two families: and preparations have been made to erect as many more as the establishment may require. When the whole shall be completed, and the mills in full operation, it is estimated that Matoaca will contain between 400 and 500 inhabitants. It had already assumed the appearance of a village, and will, in a short time vie with any manufacturing establishment in the country for beauty of situation, the substantial construction of its buildings, and the care and attention bestowed on the comfortable accommodation of the workmen.

It is expected to put the works in operation early in the next month, and we understand that it is the intention of the company to manufacture all the cotton spun in their mills into cloth.

Matoaca furnishes another gratifying evidence of the enterprise of our fellow citizens, and of the increasing prosperity of Petersburg. We have now (in addition to the several well known flour mills) five cotton, and two cotton seed oil mills; and there remains a large unemployed water power on the Appomattox.

From the Farmer and Gardener.

IMPORTANT EXPERIMENT IN POTATO CUTTINGS.

Mr. Roberts—It being desirable among cultivators to produce early vegetables, I take the liberty of noticing through your journal, an experiment on the potato crop, which may possibly be found useful to your subscibers, and cause our markets to be supplied with new potatoes about two weeks earlier than is customary, besides enabling those who plant them to prevent the ragged and uneven appearance which potato crops too generally present when coming up. In order to have a full and satisfactory trial, I caused a large square of ground to be prepared in my garden, and laid it out in four long beds, all well manured. In one of these beds I planted the top or crown of the potatoes, (mercer) in the next, the sides, and in the two last, the crowns and sides promiscuously. The crowns are

all up about eight inches high, and look very flourishing. On examining the bed in which the sides were planted I find them just sprouting, being but about one inch from the bulb, the surface of the ground having no appearance of vegetation whatever. The other two beds have come up as they were planted, promiscuously, presenting a very rough and uneven appearance, while some are eight inches high, others have not made their way through the earth. This patch was planted on the 18th June, and I mention the facts thus far developed, to encourage others to make more careful experiments, on more extensive scales, and to excite a spirit of inquiry: satisfied that we agriculturists have much to learn yet.

S.

July 9, 1835.

From the Farmer and Gardener.

ON THE MANAGEMENT OF ARTIFICIAL GRASSES.

Clairmont, 6th Month 20, 1835.

EDWARD P. ROBERTS,

Respected Friend—I have received thy letter of the 13th inst., containing 12 queries relative to the culture and suitableness of the most approved species of grasses, for dairy purposes, intended for the information of a gentleman to the south. And while I comply most cheerfully in replying thereto, I hope I shall be excused, at this busy season of the year, for making my answers as concise as possible. I am fully sensible that the subjects to which thou has called my attention, are vitally important, and are entitled to a more minute and extensive notice than I have leisure now to devote to them, but if a plain account of my opinions and practice, will be of any service to our southern subscriber and inquirer, or to others, they are at thy service.

1st Query. Is clover suited to being grazed by cattle, horses, &c.—or is it more profitable to cut it and soil the cattle with it?

In reply to this query, I may observe, that *red clover* is good for grazing cattle; but in order to derive the full benefit of enriching the land by it, the cattle ought not to graze on it until it is nearly or quite in bloom, whereby the droppings of the cattle, are in some degree covered by the clover, and the evaporation of the more valuable portions of the manure, thus to a considerable extent, prevented. The cattle should be taken off early enough in the fall to leave a good cover, to protect the roots of the clover, and prevent their being drawn out by the winter frosts. Clover is now generally known to be the best of all grasses for enriching and improving poor land; it should, therefore, be sown with all the varieties of spear grasses, viz:—orchard grass, timothy, tall meadow-oat, and herds grass, if the latter be sown on dry mellow land.

Although red clover is not the best grass for grazing cattle, yet it is essential to the grazing, as it fertilizes the land, and thereby promotes the growth of white clover and green grass, *poa pratensis*, which are considered as the richest and most acceptable to cattle of all grasses.

Soiling of cattle in the stalls have two good properties in it, viz. cattle thus fed furnish more manure, and require less land to provide the necessary supplies of provender, but these are not gained without additional expense, and great risk to the health of the cattle, which is certain to be impaired more or less, unless they are permitted to range abroad a part of each day.

2d Query. Is lucerne better suited to soiling milch cows than the common red clover; does it yield more green fodder, and is it earlier?

3d Query. Is orchard grass calculated to being grazed by cattle—does it sustain much loss from the treading down of the cattle while feeding?

Answer to the 2d and 3d queries. The cheapest and earliest article for soiling, is, I think, the tall meadow oat grass—*avena eliator*. The *lucerne* is equally early, and as good or better for soiling; but its culture is more difficult and expensive. The red clover soon follows them, and when ready to cut we have no occasion for a better article to soil with. The orchard grass and tall meadow oat, affords the most pasture of any of the spear grasses I am acquainted with, and will make good and suitable hay for cattle if sown thick, and cut when in flower, or rather before; continuing longer in sandy land than most other grasses and bears the trampling of cattle well.

I shall now answer the following of thy questions, under the same general head:

4th Query. Is it considered judicious to sow clover seed and orchard grass seed together to graze upon?

5th Query. Is it considered sound economy to sow the above grasses together for hay? In either case, what are the respective proportions of seed of each that should be sown to the acre?

6th Query. Will the orchard grass mature sufficiently early to be cut with the clover for hay.

7th Query. What quantity of orchard grass when sown alone, should be sown on an acre intended for hay?

8th Query. Should a larger quantity of orchard grass be sown on an acre intended for grazing than on one intended to be cut for hay?

9th Query. Will herds grass bear grazing; and is there much loss resulting from the hoofs of the cattle?

10th Which of all the artificial grasses within your knowledge would you prefer for grazing, and which for soiling?

11th Query. Which of the artificial grasses is the most profitable for hay, regard being had to its nutritious quality, facility of curing, and adaptation as food for cattle?

I am in the regular practice of sowing from five to six quarts of clover seed to the acre, in March, on land that was sowed in the previous fall with orchard grass, or tall meadow oat. They are in flower about the same time and are well calculated to support the clover, and be mowed together. The requisite quantity of orchard grass seed for an acre, depends much on how well it has been cleaned and prepared for sowing. I sow about two bushels when clean, first preparing it as follows:—lay the seed about four inches thick on a floor; make it thoroughly damp by repeatedly watering it well, and care should be taken to turn it frequently. It should remain thus for about 36 hours, which renders the seed heavier, causes it to fall freer from the hand, and enables the sower

to distribute it more evenly, it not being from its increased specific gravity so liable to be affected by the wind. Another advantage gained is—it vegetates with much greater certainty.

Herds grass makes good hay for milch cows, being soft and nutritious, but the yield is not equal to other grasses, either for hay or pasture.—It may, however, be sown to profit on cold damp lands, where it thrives better than on dry land, and will grow on land too wet for any of the other grasses enumerated above.

I prefer clover and orchard grass mixed to feed cattle with in hay or pasture: and timothy and clover for horses. Although the clover ripens earlier than the timothy; yet if cut when in bloom, they make a better hay than either do separately. Owing to the astringent quality of the timothy, horses fed alone on it constantly, become costive, if not feverish, and sometimes both; these being the necessary consequences of such a condition of the bowels, when long continued. This injurious and natural tendency of the timothy, is corrected by the clover; its admixture therefore with the latter is absolutely necessary to the preservation of the health of horses. Should some of the clover when mowed with the timothy be so ripe as to crumble on making it into hay, it should not be considered as a loss; it falls to the ground where it decomposes, and in part repays the soil for what it has abstracted from it, and thus serves to fertilize it and enable it the better to nourish and bring forth its next crop.

12th Query. What quantity of seed of each of the several grasses should be sown—when—and how should the ground be prepared, manured, &c?

Answer to the 12th Query. In order to prepare lands in the best manner for grass seed, all the native grass and weeds must be completely eradicated by the culture of mellowing crops; such as Indian corn, tobacco, cotton or potatoes, or by a cleansing fallow of repeated ploughings and harrowings during the spring and summer; and if not rich enough to produce from five to six barrels, of five bushels each of corn, to the acre, manure the land and plough it in with a shallow furrow just before sowing the seed. If lime or ashes should be used, it will be best to harrow them in.

I prefer sowing the spear grass seeds in the latitude of Baltimore from the 1st to the 25th of September. However, on stiff clay they may be sown later, as also on sandy lands, owing to the injurious effects resulting from their heated surface. For every degree south of, and parallel with, Baltimore, and the sea-coast, sow the spear grass seeds about ten days later: and in the spring sow clover seed ten days earlier.

I sow about the same quantity of oat grass seed as of orchard, and about five quarts of timothy seed, and one-half a bushel of herds. It is the neatest way to sow the spear grasses by themselves: nor do they require, in my opinion, the protection of grain crops; but it is however, sometimes a convenience to sow these seeds on wheat, rye and oat fields—and often very judicious in a routine of crops. It is not, nevertheless, always best on grazing farms, the shattering grain frequently proving a weed to the succeeding grass crops, whilst those grain crops, themselves, substract much of the nutriment which should have been permitted to, and otherwise would, have sustained the grass.

Respectfully, thy friend,

ROBERT SINCLAIR.

From the Southern Agriculturist.

ON THE BFNEFIT DERIVED FROM THE PEA CROP.

Woodlands, (Ala.) April 15, 1835.

Dear Sir—The great benefits derived from the pea crop in the south, are generally known to planters, but it will be readily granted by those acquainted with southern agriculture, that the advantages which a knowledge of this fact might give to them, are but partially experienced, owing to the want of being informed of a successful and ready mode of preserving that valuable plant. In No. 12, for December last, I think this subject is brought forward by one of your writers, and whose remarks has induced me, sir, to offer to you, and through your truly valuable periodical, the mite of my practical knowledge of the value of the pea, arising from the manner in which I cultivate and preserve it, and also apply it in the feeding and support of stock. And here, I beg leave to suggest an idea, the application of which I have frequently noticed, and not unfrequently felt, viz. that the relative value of any product of planting industry depends in a great degree on a judicious application of it, and a strict adherence to a well timed system of economy. Under a belief in the truth of this remark, I have appropriated my pea crop exclusively to the support of my milch cows and sheep, and fattening kids. It aids equally in the production of superior milk and butter during the winter, and fine mutton and lamb—four prominent items in comfortable living. The pea crop claims a considerable credit from the circumstance of being produced by the same labor that brings to maturity a crop of corn. Another value is fairly claimed by this plant, as an ameliorator of the soil, independent of a valuable product. The pea can be sown or planted after a crop of small grain is taken from the ground. My practice is to cut my rye and oats, what would be called early, or just before they are perfectly ripe, remove the grain from the field, and stack to cure, in some other, and turn in the stubble as soon as possible on peas previously sown—and this course more especially to improve my land, which last would be partially lost by cultivating the peas. This course is adopted also, not only to improve the land but to admit the pea to be put into the ground in good time to secure a heavy crop, and to give greater value to the straw of the oats or rye, and which I stack, or rather house, sometimes the day after cutting, by giving a liberal quantity of salt, sprinkling it over as I stack the last.

When I plant the pea with the corn crop, I put the seed into the ground uniformly, so as to secure one ploughing of the corn to the pea, as also a liberal share of the hoe. As early as the pea reaches maturity, anticipating about the time now admitted, in saving small grain, viz. "just before it is perfectly ripe," while yet the leaf and vine exhibit a growing state, the peas are pulled up, or cut at the ground, with knives made for the purpose of cutting down corn, the cutters returning along the row, cut by them, and gathering into

small armsfull, raise up the bunch, placing it as upright as it can be made to stand, for the more free admittance of sun and air. If planted among corn, this last has been sometimes removed from the field, by being cut at the ground, saving in this way, stalks, blades, tops and corn. After one day's sun, I turn and raise up the bunches of vine and peas, and if any assurance of the continuance of good weather can be seen, I give them another day. The following I haul in, on a long coupled low-wheel wagon, fixed for the purpose with racks. Satisfied from reason and experience, that open pens are better calculated for the preservation of every kind of straw and vines in our climate, than close buildings, I have pens built of chestnut rails, about twelve feet in length, which pens can be removed at pleasure: in them I placed a tight floor of jointed plank, moveable if required, and raised about two feet from the ground. On this floor I lay a little well cured and dry wheat, rye, oats, or rice-straw, and on this, pea vines are put, until the layer, after being pressed down by the weight of a child, will be about twelve inches thick; on this layer salt is scattered—there is no loss by scattering the salt freely, the floor ultimately arresting what passes through in handling and feeding; what goes off with the pea vines being necessary for the thriving and health of the animals fed—the first going to salt my hogs the next year. The scattering of the salt is followed by straw, peas as before, and salt, until the pen is filled. when the roof of broad and sound clapboards is laid on, and secured by cross-rails, which interlock with the last put on.

In this mode of housing my pea crop, I consult saving time, convenience and economy. In place of a door, I have three of the rails so fixed on the front side, (or whatever one is most convenient to take out) that they can be moved as bars. The leaves and vines are generally taken out as green and sweet as when housed, and if possible, submitted to the cutting box, and which is found an excellent preparation for the use of the animal feeding on them. This last enables them to fill themselves much sooner. The vines are cut about an inch, and if not steamed, (which is a superior preparation for milch cows) are put into the feeding trough, and sprinkled with a liquid preparation of water, with as much corn or rye-meal in it as will produce the vinous fermentation, and used just as the *acetus* has commenced.

By pursuing this mode of saving, and using this plant, it will readily occur that an acre gives, when either planted among corn, or sown after grain, a fine quantity of dry winter food, and of a most nutritious character.

The period at which the vines are taken up, makes the pod hold the pea much more tenaciously than if suffered to get perfectly ripe; consequently there is less waste in feeding. A few pigs suffered to run in the cattle or sheep pens, accounts honestly for every pea. If fed in racks, the peas may be fairly credited with the maintainance of one pig for every sheep, and four for each cow, during the time of feeding.

The straw is given out with the vines and eaten with avidity, evidently imbibing so much of the quality of the pea as to become very agreeable to the taste of animals, particularly oxen, to whom I give it frequently. In filling the pen, I place a large keg in the centre, drawing it up as I progress. This leaves an opening for the escape of any product of fermentation that may arise, as also, for the entrance of atmosperic air.

For a stock of that valuable animal, the sheep, there cannot be a superior winter provision, especially if a few turnips are added, or an hour in the day in a rye-field, with pointed attention to salting.

From a fair trial, I know this mode of feeding that animal, preserves a fine state of flesh, fleece and health, during our short winters. With some, kid is a delicacy, kept on this food along with the sheep, the real "savory meat" may be had.

CINCINNATUS.

KILNS FOR DRYING CORN—MODE OF INVESTIGATION IN THE CHEAT CONTROVERSY.

To the Editor of the Farmers' Register.

Granville, N. C. July 14, 1835.

I am desirous of erecting a kiln for the purpose of drying Indian corn to be ground into meal in the spring, and kept for use during the summer months. Will you be so good as to furnish through your Register, the most approved plan of building them? The size, the mode, and material of construction, &c.

The cheat controversy has escaped unsettled from your paper. If wheat is changed to cheat the fact may be demonstratively shown by carefully taking up by the roots the bunches of cheat, and washing the earth from the roots. If the hull of the parent grain of wheat can be found attached to the cheat, no one can longer doubt that the change does take place. I have in this way washed and examined often the roots of wheat and of cheat: the hull of the grain of wheat I generally found adhering to the roots of the wheat, but never to the cheat.

W. O. GREGORY.

For the Farmers' Register.

LUCERNE—MANURE ON BARREN SOILS.

Lynchburg, July 9th, 1835.

This valuable grass is not sufficiently known among our farmers. I have had a lot of it for several years, and am much pleased with it. Although it is not calculated to supercede clover on a large scale, and one cutting does not produce quite as much, yet it has several advantages. It is fit for use twelve or fifteen days earlier—can be cut from four to six times a year—never salivates, but is good throughout the season, and does not require renewing for many years. Every farmer should have, at least, a sufficient lot of it, but as it requires free manuring, it will, as a *crop* suit only those who have much manure and little land. And here permit me to make a few suggestions respecting manure. Every well directed movement that is made in relation to this article gives the most ample returns, but like all other operations, it requires judgement. Rich stable manure ought to remain *under a shelter* till carried to the field. Only observe the large quantity of highly colored water it gives out after a heavy rain. When there is plenty of straw, corn stalks and other litter, the case is different, as these absorb what would otherwise run off. Indeed it is probable that a large portion of the value of the corn stalk as a manure, is owing to its capacity for ab-

sorption. In general, land that is "*born poor*" cannot be manured to advantage, until something is done to change its *constitution*, whether it be lime, marl, burnt clay, ashes or other substances. We all know that the decomposition of vegetable matter tends to improve the generality of soils: yet there is land in our country that has had weeds, grass, leaves and other matter rotting on it for hundreds, and perhaps thousands of years, and is yet poor. There are lands in the neighborhood of large cities which the skill of the chemist and farmer combined, has not been able to render fertile. I am informed there is land not many miles from London itself, that has never been made productive. It would certainly be a waste of manure to put it on such stubborn soils. I am aware, Mr. Editor, that some of your readers understand these things much better than I do, but there are others who have paid little attention to the subject, and you know that to impart information, and correct bad habits of long standing in many persons, requires "precept on precept, and line upon line."

M. D.

EFFECT OF QUICKLIME ON THE MAGGOTS OF HESSIAN FLY. CROPS OF WHEAT IN THE VALLEY.

To the Editor of the Farmers' Register.

Augusta County, Va., July 16, 1835.

You requested "a statement of some experiments and observations on Hessian fly." I have made no experiments on that subject, but suppose Mr. A. referred to some observations on that subject made by me when he was here sometime since. It consists in sowing lime on the wheat at the time it begins to shoot; the theory of the *modus operandi* is, that the egg that produces the worm, or small insect, is deposited through the blades of the wheat, and obtains vitality about the time the stem begins to shoot or rise up, and it begins then to eat it, or by its bulk prevent the growth of the stalk. The remedy is then to sow broadcast lime, first made as fine as possible and dry; and it must be sowed when there is a heavy dew, or during a shower of rain. About a bushel of lime to an acre is thought to be sufficient. I had last summer an opportunity of observing a piece of wheat that was treated in this manner. It appeared to become yellow and be on the decline; and after the application of the lime, it changed color and appeared recruited, and was at harvest almost as good as the other part of the field, in which there was not any fly. You can readily conceive the manner of the water or dew on the wheat becoming impregnated with lime, which it must receive in the process of sowing, and running down the stalk, and coming in contact with the young fly, and destroying it by its caustic qualities.

The apprehension of the most desponding is realized, as to the product of the crops of wheat in this region of country. It has been estimated at one-fourth of an ordinary crop. Perhaps taking Augusta County, it may turn out so—but in my neighborhood, I think, it will not be so much. I think that I will not have more than the seed sown, if so much—but some others will have half a crop, and some few as good as ordinary. Wheat does not ripen as it generally does—it is now the 16th of July, and I have harvested none as yet, though some people are cutting now. The time of commencing harvest here, is usually in the last of June or first of July. Wheat is generally thin on the ground, and we have had a late and cold spring, and wheat is taken with mildew, scab, smut, and almost every disease to which it is subject—and being so thin as not to cover the ground, weeds and cheat, and all kinds of trash grow up with the wheat. In Rockbridge, the county next up the Valley, the crops of wheat are much better than in this county: in many parts of that county I am told their crops of wheat are good—but down the Valley to the Potomac, I believe the crops have in a great measure failed.

WM. M. TATE.

For the Farmers' Register.

ON THE BAD EFFECTS OF COLD ON SOILS AND THEIR PRODUCTS.

Wardsfork, Charlotte.

In the first place, in those regions of the earth where winter is most severe, the soil is the most steril; and where warmth prevails, fertility abounds.

Secondly. Nature provides against the bad effects of frost, by covering the earth with trees, whose leaves dropping in autumn, prepare a covering against winter. Where cold is so severe as to benumb the vital principle of soil, there is nothing but barrenness.

Thirdly. Land newly cleared, is most productive (if well broke) the first year, being long secured from freezing by a bed of leaves. And those parts of the clearing produce best which have a southern exposure.

Fourthly. Land produces better after being covered during the winter by deep snows, as these snows prevent freezing.

Fifthly. Land is more productive where it is covered during the winter by logs, brush, stacks, and even rocks and clay, where there is no marl. Soils brought up from below the reach of frost, will also produce best.

Sixthly. Land broke in the fall and exposed to the winter freeze, does not produce so kindly as when broke in the spring: though the opposite notion is held by most, but it is neither agreeable to reason nor to nature. Uncovering the earth in the fall exposes it to all the disorganizing effects of wet and cold. Forwarding business, is the only thing that can be said in favor of fall ploughing.

Seventhly. The method which nature takes to restore exhausted soil, shows it is injured by cold. There is a ***vis medicatrix*** in inanimate, as well as animated nature. The way we are told to become eminent in medicine, is to watch the movement of the conservative principle; and so I judge it is in agriculture. When exhausted land is thrown out of cultivation, the conservative principle begins to prepare a covering for the soil. The broom-straw is generally selected. This humble sedge is only of negative advantage—nature only aims at a piece of economy—a home dress to hide nakedness and keep off cold, and tie the soil together, until she can prepare a better suit. The action of frost without this covering, would be altogether destructive. I have observed after a freeze succeeded by rains, the galls increase for want of

broomstraw to hold the soil together, and there is a perpetual dividing and crumbling of particles of earth, and a vast quantity of this "real estate" is *really* hastening off to the sea. Such a "removal of the deposites" is producing waste and want in the land. It is for the want of nature's covering, that galls become gulleys—cultivation never made gulleys. Bad cultivation, to be sure, will assist; but good cultivation will not prevent the bad effects of freezing. Nature clearly shows that the mode of defence against this destructive agent, cold, is the covering of the surface. The next after the growth of sedge, is the old-field pine. Here nature aims at something more than a negative good: soil improves somewhat under this thick warm evergreen shelter, so secure against the action of frost. Nature surely abhors nakedness as much as she abhors a vacuum!

With some practical inferences, I shall conclude.

In the first place, I infer that the best mode of shielding the soil against the action of winter, is the great desideratum. Throwing your coarse manure over the surface, would contribute to this end. So would brush and other offal of your new-grounds. It also points out the great advantage of raising those grasses which would not only protect the soil against heat, but cold also.

Secondly. Galls and gulleys must be healed by covering them effectually against the action of frost, and diverting the rain waters from them by protectors. Never suffer any place naked of soil to be naked of clothing or covering. For cold in winter, is like old Harry Lee was in war: it makes for the weak points. It will be nibbling at such places through the whole winter, and they will be increased every year. What with the growing of *Yankee collections* and winter freezing, I think Old Virginia is dying not a very lingering death.

Thirdly. I infer that it is best to plough land in the spring; that plant beds should be covered during winter, and also garden spots; as keeping out the cold quickens the vegetating principle, and gives a forward growth to plants.

Fourthly. I infer that there is no necessity for the four-shift system, the grand promoter of emigration, sending off more than would an annual insurrection. If our fields were kept well covered with vegetation, and coarse litter, there would be no need of so much rest. The monopoly of landed property now increasing, and shoving out many of the laboring people to the west, is a serious matter to Virginia, and it arises in some measure from the idea, that it takes a longer time to make land rich, and it must be done by rest principally. If this notion remains with us long, the bone and sinew of the state will be driven off, and who will be left behind? A few of the genteel with their many *shifts* and many '*negers*' will have more high blood than high pluck, more bowels than brains; and will in less than a half century, (if they breed at all,) by marrying (but not loving) their rich cousins, fill the land with halt, withered and blind, which would take another pool of Siloam with an angel to trouble it, to make them whole again.

The view I have taken, suggests the necessity of covering the soil around the roots of grape vines, valuable shrubs, and fruit trees. Does not the close observer of nature see how she covers the roots of trees with leaves, full time enough to guard against winter? J. R.

From the Penny Magazine.

ON THE HATCHING OF POULTRY.

In the hatching of poultry, as in most other things, nature is the best guide. The hen and duck, if left to themselves, find some dry, warm, sandy hedge or bank, in which to deposite their eggs, forming their nests of leaves, moss, or dry grass. In this way the warmth is retained when the bird quits the nest for the moments she devotes to her scanty and hurried meal. The good housewife's mode is the reverse of this. She makes a nest, or box, of stone, brick, or wood, and fills it with clean long straw. By this means, less heat is generated by the hen, and that which is produced quickly escapes in her occasional absences;—the eggs are chilled and addled, and frequent failures ensue in the expected brood. To obviate this, the best mode is to put at the bottom and sides of the boxes of the henhouse, a sufficient quantity of fine, dry sand, or of coal or wood ashes, lining them with a little well-broken dry grass, or untwisted hay-bands, or moss, or bruised straw. Wood-ashes have been found to be the best, as they produce the effect of destroying the fleas by which poultry are so much infested; and that this will not be disagreeable to them is evident from the propensity which they have to roll in heaps of dust, or of ashes of any kind. An experienced rearer of poultry adopted the method above described during a long course of years and scarcely ever met with a disappointment.

From the Franklin Mercury.

A PROFITABLE CROP OF MULBERRY PLANTS.

A Northampton gentleman planted last year a half-paper (costing twenty-five cents) of the Morus Multicaulis, or Chinese Mulberry. The seed occupied a few feet square of his garden, and the plants came up to the number of about two hundred and forty. For these plants he has repeatedly this season been offered twenty-five cents each. The principal reason of this, however, is that the seed originally procured of this species of mulberry has all been consumed, and there is not much probability that any more good seed can be procured from the same quarter; and some years, of course, must be elapsed before it can be procured from the native trees. Other parcels of this seed have been obtained from China since the first was imported, but none of them have produced anything, having without doubt under the influence of the proverbial jealousy of the Chinese been subjected to some process, which, without affecting the appearance, destroyed the fructifying principle.

[The foregoing is a striking illustration of how many losses and disappointments will be sustained, before it is generally known that no reliance can be placed on the seeds of the Chinese mulberry for producing the same kind of plants. The several translated articles on this subject, which have been given in this journal, if regarded, would serve as very important instructions to those who seek to propagate this tree. If indeed it is true, (as alleged above) that the Chinese have destroyed the germinating power of the seeds before selling them, by the intended fraud they have rendered a service: as it is better to be dis-

appointed by the seeds not sprouting, than in the kind of crop expected from them, after years have been devoted to the culture.]

From the Penny Magazine.

WILD DOGS IN VAN DIEMEN'S LAND.

The annoyance and danger occasioned by the wild dogs in Van Diemen's Land is still a subject of great complaint in the papers of that colony; and the most active exertions hitherto used seem to have had little effect in abating the nuisance. The dogs appear rather to increase in number and boldness. A case is mentioned in which a person named Akerly was assaulted by thirteen of these animals, and would probably have been killed if he had not contrived to get up into a tree. The means hitherto employed to eradicate them do not seem to have been commensurate with the growth of the evil. A society has been established at Gaddesden, near Campbell Town, to effect their destruction; and the house of the chairman exhibits a collection of skins, to the number of a hundred, of dogs that have been killed, of almost all kinds, from the shepherd-dog to the Newfoundland. It is thought that unless the most decided measures are taken, it will be impossible to pasture sheep in the colony. The dogs bring forth six or eight young at a litter, and commence breeding at one year old, while the sheep brings forth only one, and does not commence breeding until two years of age. The ultimate and discouraging prospect which this opens is brought nearer by the daily defection of the domestic dogs of the colony to the wild ones. "At the remote stock-hunts," says a recent paper, "a free man keeps as many dogs as he pleases; frequently six or eight are kept; these dogs provide for themselves, and continually make off to the wild packs. All remonstrance is received with a smile of contempt, and returned by insult; and until such people are strictly prohibited from keeping dogs in the pastoral districts under heavy penalties, matters are not likely to mend: indeed it is to be feared that the evil is fixed for ever—that it has been too long neglected, and is now past remedy." We are too well assured of the resources and power of civilized men to partake of these apprehensions; but any delay now in organizing a plan of simultaneous operation against the dogs, is likely to render their future extirpation a matter of great and increasing difficulty and expense. Meanwhile, at this distance from the spot, it is interesting to watch the various aspects in which this remarkable state of things appears, and to observe the different measures which it may be necessary to adopt against the canine depredators. Since writing the above we find that an "Act of Council" has been issued for the purpose of restraining the increase of dogs. All dogs are to be registered; and none are to be left at large except in Hobart Town and Launceston. Unregistered dogs, or dogs found at large contrary to this order, are to be killed. The persons killing them are to be paid from 5s. to 40s. for each, out of a fund formed by the registration fees. The registration fee for a watch-dog kept chained, or a sheep dog, is 2s. 6d.; all other dogs 10s., or if females double the respective amounts. The local newspapers are not very sanguine in expectations of good from this measure.

EXTRACTS OF PRIVATE CORRESPONDENCE.

Abbeville, S. C., July 11th, 1835.

I congratulate you, sir, on the growing circulation of the Register. Yet it is a matter of surprise that a useful publication like this, which interests nine-tenths of the people, should not be still more eagerly sought for, and liberally sustained. Is agriculture, the first, noblest pursuit of man, unworthy of the investigation of the principles which constitute it a science, and of their proper application to practical purposes? This question will be promptly answered in the negative; still men, by their acts, seem to affirm otherwise. It is certain that one of the most efficient means of rendering service to the cultivators of the soil, is to present, in one view, the results of individual experience, by the examination and comparison of which, some principle may be deduced and established. And as the remoteness of individuals from each other preclude the practicability of a personal interchange of thoughts and opinions, such a work as the Register, may, through the facilities furnished by the press and post office, remove the barrier, and bring men who live many hundred miles apart together, without scarcely any trouble or expense. Its title to patronage is too obvious to demand labored reasons to prove it.

Columbia, S. C. July 12, 1835.

I had intended when I next wrote to you, to say how I was pleased to travel over again the farm of Lagrange in your last number. Our great and good friend Gen. Lafayette, and his son-in-law Mr. Delasterie, took me to see the whole of it, at which I was, of course, much gratified. I recognized most of the particulars as I read the account. The farm of Lagrange is, I believe, the best as to quality of land of that part of country; but some of his neighbors who have also their farms in the best order, deserve much more credit than they generally get; for, if I am not very much mistaken, they had to work on a most miserable flat, white and wet soil, and nothing but great skill and great industry could have made such farms as I saw there in a state of improvement.

Prince George, July 21, 1835.

I send you specimens of the *turkey*, and of the *blue stem wheat*; a couple of heads and some of the grains of each. They are both very fine. Examine them attentively, and see if you can discover any difference. They were raised but a short distance apart, a space of but 15 or 20 feet intervening; and bore so strong a resemblance throughout the whole period of their growth, as to leave on my mind but little doubt of their identity. If it be the same wheat, it may save some trouble to those who, or whose neighbors, cultivate it under the name of "blue stem," to be apprised of the fact. From the high reputation of the turkey wheat, they might incur some trouble and expense, too, to get that which they already have. I have been somewhat disappointed by finding that I have but one valuable variety, where I expected two. The blue stem has the

character on the Pamunkey, where I derived my specimen, of being peculiarly adapted to low grounds, but is not otherwise considered a very productive kind. I understand it is exempt from the *strut*, as it is called in this neighborhood, to which the *purple straw* is unfortunately so liable.

While on the subject of wheat permit me to ask, through you, a description of the "*Washington white wheat*" of Maryland. Is it a bearded wheat, resembling at maturity, while standing in the field, the *golden chaff*? I received a barrel last fall, selected with some care, in Baltimore, under that name, which accords with the above description, but has turned out very indifferently, whence I infer that there may have been a mistake.

[The two samples of wheat seem, both in grain and head, to be precisely alike. Until receiving this sample of "blue stem," and finding it a white wheat, we had been deceived by that name, and supposed that it was meant for the "purple straw," of which the name is equally descriptive. Thus it frequently happens, from the confusion in agricultural nomenclature, that a term known to every body in one part of the country, is either unknown, or is applied to something else, at the distance of a hundred miles, or less.]

PROSPECT OF SEASON AND CROPS.

From all the information received, there is but little doubt left of a general loss in the wheat crop of Virginia, of between one-half and two-thirds. In Lower Virginia, we have heard of good crops no where, except in the neighborhood of Williamsburg—and all were not good even in that small space. The sufferers in such cases are apt to be persuaded that their losses are greater than afterwards may be found true—and besides, we have only statements limited to particular farms, or at most, particular regions of the state. But our reports all came from known and highly respectable correspondents, and are in every case made as correctly as the writers' lights have permitted. In this respect, they stand on a very different footing from the usual reports which appear in commercial newspapers, and which often are written by dealers and speculators, with the view of affecting prices for their private gain.

The crops of wheat in Pennsylvania are fine—and so it is lately said of New Jersey, and at least part of New York. The price in Virginia therefore cannot be as high as is generally supposed.

The corn in Lower Virginia now promises a good harvest. But much of its present luxuriance is owing to the recent frequent and abundant rains, which have produced a degree of succulence which will be the source of greater injury to the crop, should a severe drought occur in August. The uncertainty of the result, and the risk of diminished product is not lessened, but increased, by the present fine appearance of the growth.

July 29, 1835.

Lynchburg, July 9th, 1835.

A terrible tempest of wind, rain and hail passed over the centre of this place on the 27th of June, and in its range *totally destroyed* wheat, rye, oats, corn, and garden vegetables, and broke all the window glass which was exposed. Twenty-five birds, mostly doves, were found dead under one tree in a field near town. Much of the hail was solid, and large and heavy as hens' eggs; and several credible gentlemen say they saw stones big as a man's fist. It was something over a mile wide, and commenced in Botetourt, fifty miles or so west of this, and continued, I know not how far down. A similar storm, reported in the Enquirer, on the same day in Chesterfield, was probably a continuation of the same cloud.

Abbeville, S. C., 11th July, 1835.

The crops in this section of South Carolina, are more backward than it was ever known—and what I affirm of them here, may be justly predicated of them throughout the state. Our great staple, cotton, has been retarded in its growth by the lingering of winter in the bosom of spring. Planters commenced to commit their seed to the earth at the usual time in April, but the coldness of the soil produced by a winter of unparalleled rigor, and the hard chilling rains which succeeded the planting, destroyed the vegetative principle of many of the seeds, and caused, what is here termed, a "bad stand." These unpropitious circumstances, made the plants that did protrude through the crust of the ground, puny and sickly; thus rendering it almost indispensable to replant. The reward of the planter's toil now depends much upon the subsequent season, and the late arrival of frost in autumn. Indian corn, which is a more hardy plant, and can endure tribulations that would be death to its more tender neighbor, cotton, exhibits a more flattering prospect, except in such vicinities as have been visited by a drought of long continuance. But the rains begin now to descend in copious showers, and if they continue, corn crops will, no doubt, yield well. The oats are in general good, and have just been harvested. There was an almost total failure of the wheat crop. The intense cold of the winter killed it almost entirely, and some of that which did survive, was injured by the rust. The quantity raised will not near supply the demand for home consumption. Flour is now selling from nine to ten dollars the barrel. We must look to the north to supply the demand. Wheat with us has proved generally an uncertain crop—but I cannot avoid believing, that this is owing to a very defective preparation of the soil, and a want of attention to the selection of proper seed—though I will not venture to assert, that our southern climate is as congenial to its growth as a more northern one.

King George, July 13, 1835.

I am just finishing my harvest—the latest within the memory of our old men—and the most unprofitable. I do not think that I shall make more than one-third of an average crop. One-third of my crop was a clover fallow, the product of which will probably equal that of the balance, which was sown upon the best of the corn land. My estimate is, that the fallow will bring only four for one. The fly did me infinitely more mischief than the excessive cold of the winter. I observe that the wheat was better where the clover was plastered.

Frederick, Va., July 23rd, 1835.

Harvest is now over in this Valley pretty generally, and the reports of the newspapers to the contrary notwithstanding, I think the average crop of the Valley will not exceed one-fourth.

A CHAPTER ON DISCONTINUANCES OF SUBSCRIPTIONS.

If the Farmers' Register could live upon praises, it would be in a most thriving way—and there would be little ground to entertain fears for its decline, and final suppression, for want of a continued and sufficient support. If we were so disposed, we could fill many pages with unbought and unsought expressions of approbation from various subscribers and correspondents, and which however mistaken, or exaggerated, as testimonies of the value of this journal, were given (it may be presumed) as honestly as voluntarily, on the part of the writers. Very many of our correspondents know that passages of their communications of this kind have been either omitted entirely, thereby incurring some risk of offending our best friends, or the expressions of their favor and approbation have been softened and moderated in the publication, when they were so connected with the more important subject of the communication, that such passages could not be left out. This course has been taken, because such expressions of approbation, if published as received, would be considered more as evidences of editorial vanity, than merit—and would be confounded with the ordinary "puffs" which are so easy to procure, and the fabrication of which now forms a regular but disgraceful part of the trade of publication—and is a branch of the trade which is the most profitable to the least deserving.

But it is remarkable, (and would be not a little amusing to others less interested than ourselves—) that many of those who lavish praise on our work, at the same time announce the discontinuance of their support. Now we are well aware that kind feelings may often induce these disagreeable annunciations to be accompanied and softened by expressions of approbation—but we cannot therefore distrust the sincerity of the opinions so expressed, and which are altogether voluntary, and uncalled for. When any subscriber chooses to withdraw his support from a work, after having complied with all his obligation incurred on that account, there is no need of reasons or excuses being given for his discontinuance. Between him and the publisher, the transaction is a mere matter of business—an exchange of a certain amount of money, paid by the one, for certain services to be rendered by the other—and neither of the parties is under any obligation to the other, beyond the payment of the sum, or the service; nor to continue the bargain longer than it is desirable, or than a full equivalent is received for what is paid. If we expected more than this, we should be at least ashamed to acknowledge it. We only ask those who wish to withdraw their support, to do so in proper time. The whole year is open to them for that purpose, and when payment is made, and a discontinuance ordered for the end of the current volume, it will be as readily and as certainly entered early, as late. But many will subject the publisher to sending out one and even two or more monthly numbers of a new volume, before announcing an intention to stop at the end of the previous one: and in many cases, he is compelled to submit to this most unjustifiable imposition. The course of subscribers in such cases, is either civilly begging that a debt fairly incurred by them shall be remitted gratuitously by the creditor—or otherwise the debt is boldly denied, and the creditor must submit to the spoliation, for want of means for redress.

So far the matter is considered as between individuals—and so far, the editor pretends to have no claims on any subscriber's support—nor for any thing more than a bare compliance with obligations actually incurred. But there is another and more important point of view, to which attention is due. This applies to the general interest of the agricultural community, in the maintenance of the Farmers' Register, considered without regard to any particular or private interest, either of publisher or subscribers. Whatever may be the true degree of applause due to the operation of this journal—whether it be fixed according to the partial estimate of its warmest friends and zealous supporters, or of those who have never aided its efforts—or at any average degree between the opinions of friends and of *enemies*—it will certainly appear, that through this medium much service has been rendered to agricultural improvement and agricultural interests, even during its short course—and that such effects may be necessarily expected to continue to increase, with the age and increased influence of the work. If any persons deem the Farmers' Register to be worthless—or that its place would be better filled by any other agricultural publication—they are right to withhold their support. But among the great number who entertain opinions altogether opposed to these—who indeed would testify the most strongly in favor of its useful effects—it is strange that there should be so large a number who have never lent any support, or having done so, have withdrawn it. If only a tythe of the benefits anticipated from such a journal were to be realized to the agricultural community—and even admitting that an individual should derive from it no special and private benefit, but only his proportion of the general benefits shared by all the agricultural community, it would be manifest that his subscription for life, would be of very inconsiderable amount, compared to his share of the general benefit to be thus derived.

QUERIES.

Queries on the following subjects have been addressed to us. We owe an apology for the long delay of the first, which was caused by unintentional oversight.

1st. What is the proper mode of thatching houses with straw? And would the practice be economical in Lower Virginia?

2nd. What is the best size, form, and model of fixing a roller, to be used on level and light land, for the purpose of giving the soil greater firmness by pressure?